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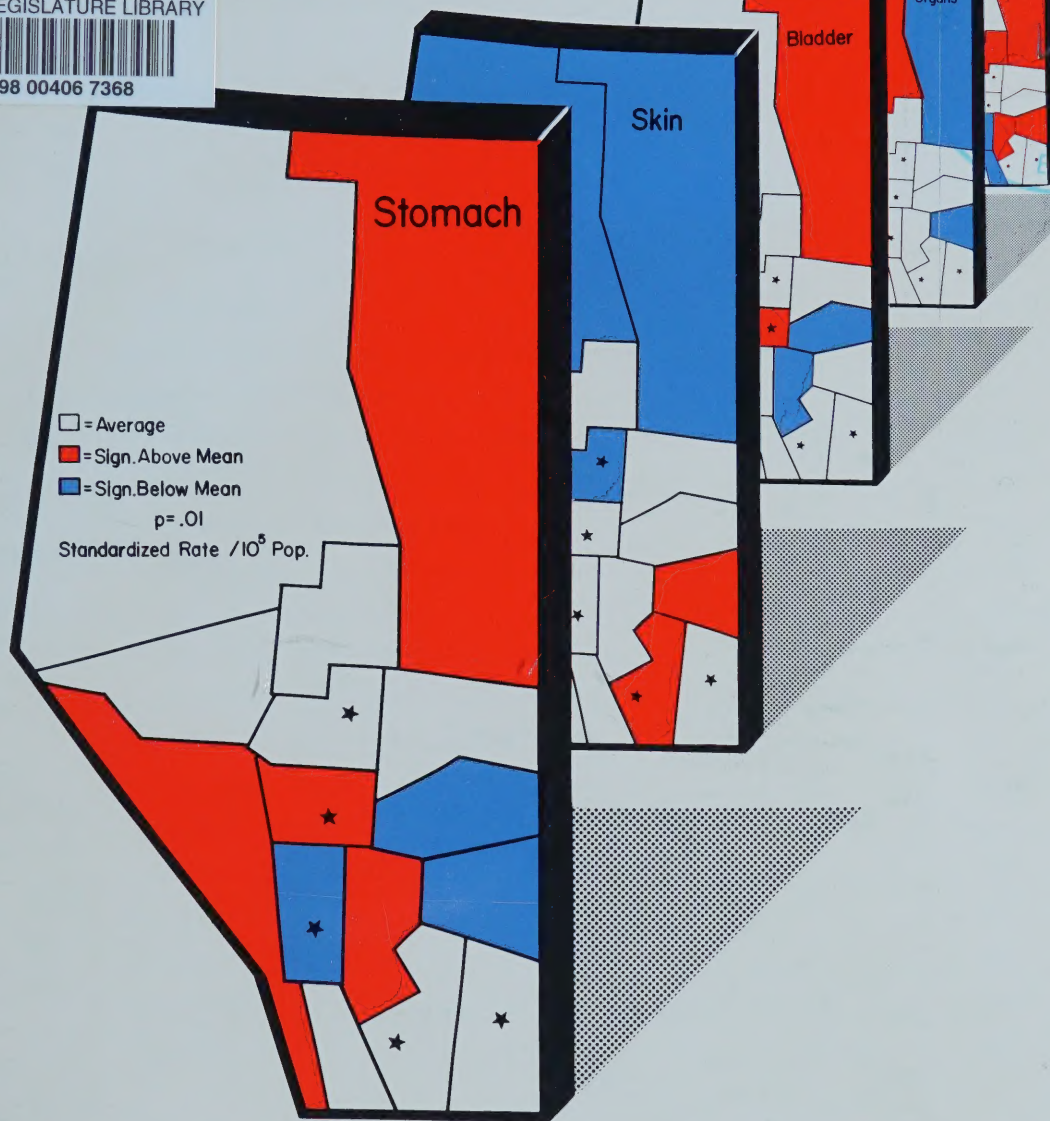
1975-1976

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Provincial Cancer Hospitals Board Report 1975-1976



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INTRODUCTION

This is a good report, it tells of progress far beyond the early expectations of the Provincial Cancer Hospitals Board when its members were first brought together late in 1967. Those who know the work of the Board will share with its members a sense of gratitude for goals achieved, a firm commitment to high quality patient care, and a concern that a comprehensive cancer program shall be available to every citizen of Alberta.

Previous reports have indicated objectives of the Board. Today we have a professional, scientific and support staff of which we are justly proud. Our treatment and prevention programs are in good hands. The research capability of the Board continues to grow and the work of our staff members becomes known even farther afield. The education of professional, medical and technical staff at the graduate and undergraduate levels is now an integral and ongoing part of our provincial cancer plan. We enter our tenth year of operation confident that goals difficult of achievement can be set and can be reached.

Under our affiliation agreement with the University of Alberta, the Dr. W. W. Cross Cancer Institute provides exposure to clinical aspects of the treatment of cancer patients for undergraduate students in the Faculty of Medicine, while undergraduate students participate in the residency program. Our 1974 report indicated an increase in the scope of the agreement. In this report you will read of the establishment of a Division of Oncology within the Faculty of Medicine. The Board was very pleased when Dr. R. Neil MacDonald was appointed Director of the Division of Oncology and at the same time assumed his office as Director of the W. W. Cross Cancer Institute.

We were most fortunate to have Dr. Walter C. MacKenzie accept the position of Executive Director. Every Board member holds Dr. MacDonald and Dr. MacKenzie in the highest esteem, and developments during 1976 are due largely to their planning and close cooperation.

After many disappointing and long delays, we know now that in Calgary we can move to expand patient care and service and to develop education and research. The Calgary Oncological Centre will be built in conjunction with the Foothills Hospital Extended Care Facility and in close association with the University of Calgary, Faculty of Medicine.

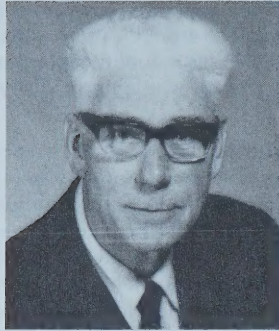
An affiliation agreement has been signed with the University of Calgary to provide for research and medical education in the field of cancer. Joint staff appointments will be made by the Board and the Faculty. Laboratory space for our cancer research facility will be housed in the Medical Building giving play to the desire for cooperative cancer research projects.

Assurance of the high priority placed on the expansion of cancer services by the Alberta Government has been converted into approval of the conceptual plans for the Calgary Centre, architects have been appointed and the site secured. The Foothills Hospital will be responsible for the building—a multiple use structure—in which the Oncological Centre will have its own entrances and easy access to the Hospital and medical buildings. Bed space for cancer patients is assured, with adequate provision for out-patients, and we shall have by agreement with the Foothills Board all the support services and personnel required by a patient care program of high quality.

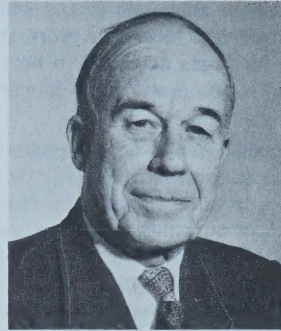
To single out those who have participated with our executive and staff members to make this a memorable report is impossible. The Board does thank, sincerely, all the many organizations and individuals who have helped to establish and develop early diagnostic and treatment facilities and programs, to advance education and research projects, and to assist in patient care programs. We appreciate the collaboration of the University Presidents and their Deans of Medicine. We acknowledge the interest of the Hon. Gordon Miniely, Minister of Hospitals and Medical Care and thank him, his staff, and the members of his Hospital Services and Medical Insurance Commissions for their patience before our repeated and insistent requests, and for their assistance in promoting the service to which our Board is dedicated.

T. D. BAKER
Chairman
Provincial Cancer Hospitals Board

BOARD MEMBERS



DR. T. D. BAKER
Chairman



DR. J. W. MACGREGOR
Vice-Chairman



DR. W. S. ANDERSON



MRS. R. DOLGOY



MRS. P. JASMAN



MRS. K. MCKENZIE



MR. R. J. R. NOYES



MR. R. POTTINGER



MR. W. PRATT



MR. S. D. SOUTHERN

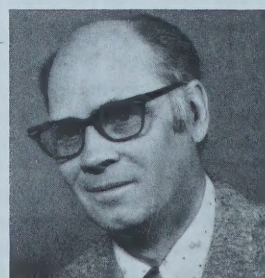
PROVINCIAL ADMINISTRATION



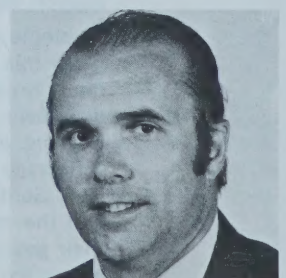
DR. W. C. MacKENZIE
Executive Director



MR. H. B. MASON
Provincial Business
Administrator



MR. J. DALLOW
Director of Personnel



DR. M. GRACE
Director, Biostatistics,
Analysis and Cancer Registry

EXECUTIVE DIRECTOR'S REPORT

Dr. T. D. Baker
Chairman
Provincial Cancer Hospitals Board

Sir:

I have the honor as Executive Director to submit to you a report of the Provincial Cancer Hospitals Board operation covering the period January 1, 1975 to December 31, 1976. The Administration and the Medical Staff extend their gratitude and sincere appreciation to you and the members of the Board for your sustained effort to have the Provincial Cancer Hospitals Board provide the very best in care for the cancer patient in this province. We are also appreciative of your support in strengthening and consolidating our objectives in the areas of professional and lay education, cancer research and the development of programs in prevention and early diagnosis of cancer.

We have had a formal affiliation between the Health Sciences Centre of the University of Alberta and the Provincial Cancer Hospitals Board for many years. However, 1976 saw the completion of a formal affiliation between the University of Calgary Medical School and the Provincial Cancer Hospitals Board. Negotiations which led up to this liaison with the University of Calgary have been amicable and productive and we are indebted to Dean McLeod and his colleagues in the Medical School for their wholehearted support in the development of this affiliation agreement. We are sure that it will bring a coordinated approach to the patient care, education and research aspects of the oncology programs in Southern Alberta.

An interdepartmental Division of Oncology was inaugurated at the University of Alberta in January 1976 with Dr. R. Neil MacDonald as Director. The Administration of both the Medical School and the Provincial Cancer Hospitals Board have been very impressed with the stature this Division has developed in its first year. The interest and cooperation of the many individuals, who have been asked to participate directly in the Division's activities, recognizes not only the superb effort of the Director, Dr. MacDonald, in the development of this Division, but also is a tribute to the respect in which he is held by all members of the academic community and the profession.

The Division has developed a productive liaison between people primarily based in the Dr. W. W. Cross Cancer Institute and individuals in other parts of the University of Alberta. The success of this liaison is attested to by the fact that 46% of the papers and presentations made during 1976 involved joint authorship between Cross Institute personnel and individuals based outside the Institute. In addition, the number of papers and presentations increased remarkably in 1976 over 1975.

The last two years were characterized by renewed effort in the planning for the updating and expansion of the role of the Provincial Cancer Hospitals Board in cancer care in

Southern Alberta. Of special significance, is the fact that the Alberta Hospital Services Commission has approved in principle the plans for the new Southern Alberta Cancer Centre and has granted approval to continue detailed planning to begin construction in June of 1977. The realization of this development results from the sustained effort of you Sir, the members of the Board, and particularly my predecessor, Dr. R. Neil MacDonald. Dr. MacDonald's various carefully prepared submissions to the Alberta Hospital Services Commission and to other Government agencies over the last three years laid the groundwork for this new development and created a milieu in which it could go forward.

Dr. L. Martin Jerry, formerly of McGill University, the Royal Victoria Hospital and the National Cancer Institute Research Laboratory at McGill, has joined our program as Director of the Southern Alberta Cancer Centre. Dr. Jerry will assume his responsibilities as of July 1, 1977. Dr. James Francis has assumed the Directorship of the Department of Surgery in the Calgary Clinic and will be responsible for the coordination of the surgical aspects of the multidisciplinary patient care program to be emphasized in the care of cancer patients.

Dr. Jerry has previously served as the physician in charge of immunotherapy in oncology at the Royal Victoria Hospital in Montreal and as a senior investigator in the Montreal Cancer Research Unit. Dr. Jerry has a keen interest in the multidisciplinary approach to cancer patients and particular competence and experience in the area of multidisciplinary clinical trials.

During the year, the number of visits to the Provincial Cancer Hospitals Board institutions in the area of patient care have continued to increase. Our professional staff have expended their research efforts in all departments and have presented the findings of their basic and clinical studies at a wide range of provincial, national and international meetings.

We are grateful for the recognition by the Government of Alberta of the vital needs of the cancer program by providing new major equipment in diagnostic radiology and particularly radiation oncology, both in Edmonton and Calgary. In addition, the Government has made special research allocations in the fields of radiobiology, estrogen receptor monitoring and the medical geography of cancer in Alberta.

Our organization is increasing in size year by year which is to be expected as the number of cancer patients requiring services is increasing each year. However, we are hopeful that the personality, warmth and informality developed as a small organization will persist as the organization

becomes larger. If this is to be so, it is obvious that the departmental directors will have to continue in the future to be personally interested, concerned and involved with those for whom they bear a responsibility to the organization in the same manner that they have in the past.

On a personal note, may I express my appreciation to you Mr. Chairman, to the members of the Board, to the

members of the Administration, and to our Medical Staff throughout the Province, for the help and support they have given me during my introductory period in this organization.

WALTER C. MacKENZIE, M.D.
Executive Director

BIostatistics, Analysis and Cancer Registry

M. GRACE, Ph.D., M.A., B.Sc.

Director

(Associate Professor, Faculty of
Medicine, University of Alberta)

R. TAYLOR, B.A.

Research Officer

J. HANSON, M.Sc.

Programmer

With the help of the Government Data Centre, a new cancer registry system was designed and constructed in 1974. From the beginning of March onwards two staff members from the Government Data Centre and a programmer from our department (funded by a National Health Grant) worked full time on the registry. The programming was designed in two steps, firstly, the present cancer registry was amalgamated with the patient indexing system and, secondly, new data editing programs were written which checked the accuracy of input data. The cancer registry now involves the processing of over 6,000 new cases every year determined through physicians, pathology reports, and death certificates, collecting as many as 80 variables on each new cancer patient. During 1975 data collection procedures for the registry were improved through the upgrading of the quality of data obtained from the registry form and the development of a computer linkup with the Alberta Health Care Insurance Commission to ensure that all patients receiving treatment for cancer were registered with one of the three cancer clinics. All pathology reports mentioning malignancy are sent to the cancer clinics with registration requested from the physician for patients not registered after one month. This system has reduced the number of unregistered pathology reports by 50%. Information received from Vital Statistics now informs us of deaths where cancer is the secondary, as well as the primary cause of death. Work commenced on setting up a computer system to compare the provincial death listings with the cancer registry. In 1976, we continued to expand our links with the Government Data Centre, Alberta Health Care Insurance Commission and Vital Statistics. A step forward was made to produce a regional data base with the establishment of a Western Canada Registry Group which endeavours to share both problems and data. This link has already contributed to the advancement of several research projects. The level of communication grows with the National Cancer Institute, Statistics Canada and Health and Welfare. Information is being shared with other members of the International Agency for Cancer Research as well as individual registries throughout the world. We also have been participants in a program to develop International Classification of Diseases for Oncology (ICDO).

The Patient Indexing System (PIS) was started in 1972 to maintain research and administrative data. The first

phase of this system was implemented by the end of 1975 in all three clinics. The patient index lists all patients alphabetically and numerically, giving identifying information for more than 150,000 patients, both benign and malignant, who have ever attended or been registered at a cancer clinic. Regular updating of this system allows staff to determine whether a new patient has been registered in Alberta, thus preventing duplicate registrations. Early in 1976, the PIS went from printed listings to Computer Output Microfiche; a saving of \$17,000 a year. Computer Output Microfiche readers are available in all departments using the PIS and discussions have begun with two other city hospitals to share an "on-line" PIS.

Cancer research, both clinical and epidemiological, is a major function of the cancer registry. A growing number of such requests, requiring specialized statistical analysis is submitted to our department. In future, many projects will be analyzed as subfiles of the cancer registry. Only that data not already on the registry need be coded and the system will store this data for future users.

We have received grants during the last two years to conduct research into:

1. the relationship between diet and bowel cancer,
2. occupational and environmental cancer, particularly in the fields of agriculture and petrochemicals,
3. lung cancer in uranium miners,
4. the establishment of a detailed breast registry to study the etiology, staging and treatment of breast cancer, as well as participating in many other research projects.

Future Plans

During 1977 we plan to merge the cancer registry with the Patient Indexing System. Plans will also be completed for an extension of the cancer registry into the areas of patient information to service the Out-Patient Department, Medical Records and Administration which should provide information on patient follow-up. We shall be expanding the registry to include more detailed information on the pathological description of tumours. Research studies will continue making use of the data collected on the cancer registry by collaboration with investigators and particularly by the initiation of more of our own projects to be conducted throughout Alberta.

PRESENTATIONS

EGEDAH, R.: Chemical Carcinogens and Bladder Cancer. Presented at the Canadian Public Health Association Meetings, May 1975.

GRACE, M.: Cigarette Smoking and Lung Cancer. Presented at the 1976 Annual Meeting of the Vermilion Cancer Society.

GRACE, M.: Computerized Patient Management Problems: An Alternative Examination Technique. Presented at the 14th Annual Conference on Research in Medical Education, Washington, November 1975.

GRACE, M.: The State of the Art of Cancer In Alberta as Measured by Numbers. Presented at the Annual Meeting of the Camrose District Cancer Society, Camrose, September 1975.

TAYLOR, R. D.: A Data Management System Applied to a Regional Cancer Services Program. Presented at Conference sur La Science des Systemes dans le domaine de le Sante, Paris, France, July 8, 1976.

PUBLICATIONS

Burnett, W. W., GRACE, M., Hall, W. F., King, E. G.: The Problem of Hydrogen Sulfide Poisoning. Published in the Alberta Medical Bulletin, 40(3):68-69, 1975.

Cinesi, M. P., Miller, J. D. R., GRACE, M., Ayers, T. N.: Analysis of 128 Patients with Angiogram in Acute Head Trauma. Published in the Can. J. of Neuro. Sciences 2(3):185-189, 1975.

Crawford, B., Larson, M., GRACE, M.: Smoking—Let's Fight it in the Schools! Published in the Alberta Teachers' Association Bulletin, September-October, 1975. Pp. 34-35.

FINCHAM, S. M., GRACE, M., Taylor, W. C., Skakun, E. N., DAVIS, F. G.: Pediatric Candidates' Attitudes to the CPMP in a Certifying Examination. Published in Medical Education 10:404, 1976.

GRACE, M., Bay, K. S.: A Random Walk Simulation Model for Enrollment Projections. Published in the J. of Educational Data Processing, 12(2), 1975.

GRACE, M., HANSON, J., Trommelen, P.: Markov Chain Model for Enrollment Projections. Published in the J. of Educational Data Processing, 12(2), 1975.

GRACE, M., Taylor, W. C., Skakun, E. N., FINCHAM, S. M.: Computerized Patient Management Problems: An Alternative Examination Technique. Published in the Proceedings of the 14th Annual conference on Research in Medical Education, November 1975, p. 11.

Overton, T. R., SILVERBERG, D. S., Rigal, W. M., GRACE, M., Higgins, M., Bettcher, K. B., Dossetor, J. B., Harley, F., Deluca, H. F.: Bone Demineralization in Renal Failure: A Longitudinal Study of the Distal Femur Using Photon Absorptiometry. Published in the Brit. J. of Radiology 49:921, 1976.

Taylor, W. C., GRACE, M., Taylor, T. R., FINCHAM, S., Skakun, E.: The Use of Computerized Patient Management Problems in Certifying Examination. Published in Education 10:179, 1976.

Skakun, E. N., Taylor, W. C., GRACE, M.: The Use of Patient Management Problems in a Pediatric Certifying Examination. Published in the Ann. of the Royal College of Physicians and Surgeons, 9(3), 1976.

Weir, B., GRACE, M.: The Relative Significance of Factors Affecting Post-Operative Survival in Astrocytomas Grades I and II. Published in the Can. J. of Neuro. Sciences, February 1976, p. 47.

Weir, B., Rothberg, C., GRACE, M., DAVIS, F. G.: Relative Prognosis Significance of Basospasm Following Subarachnoid Hemorrhage. Published in the Can. J. of Neuro. Sciences 2(2):109-114, 1975.

ALBERTA CANCER STATISTICS 1975

SOURCES OF INFORMATION

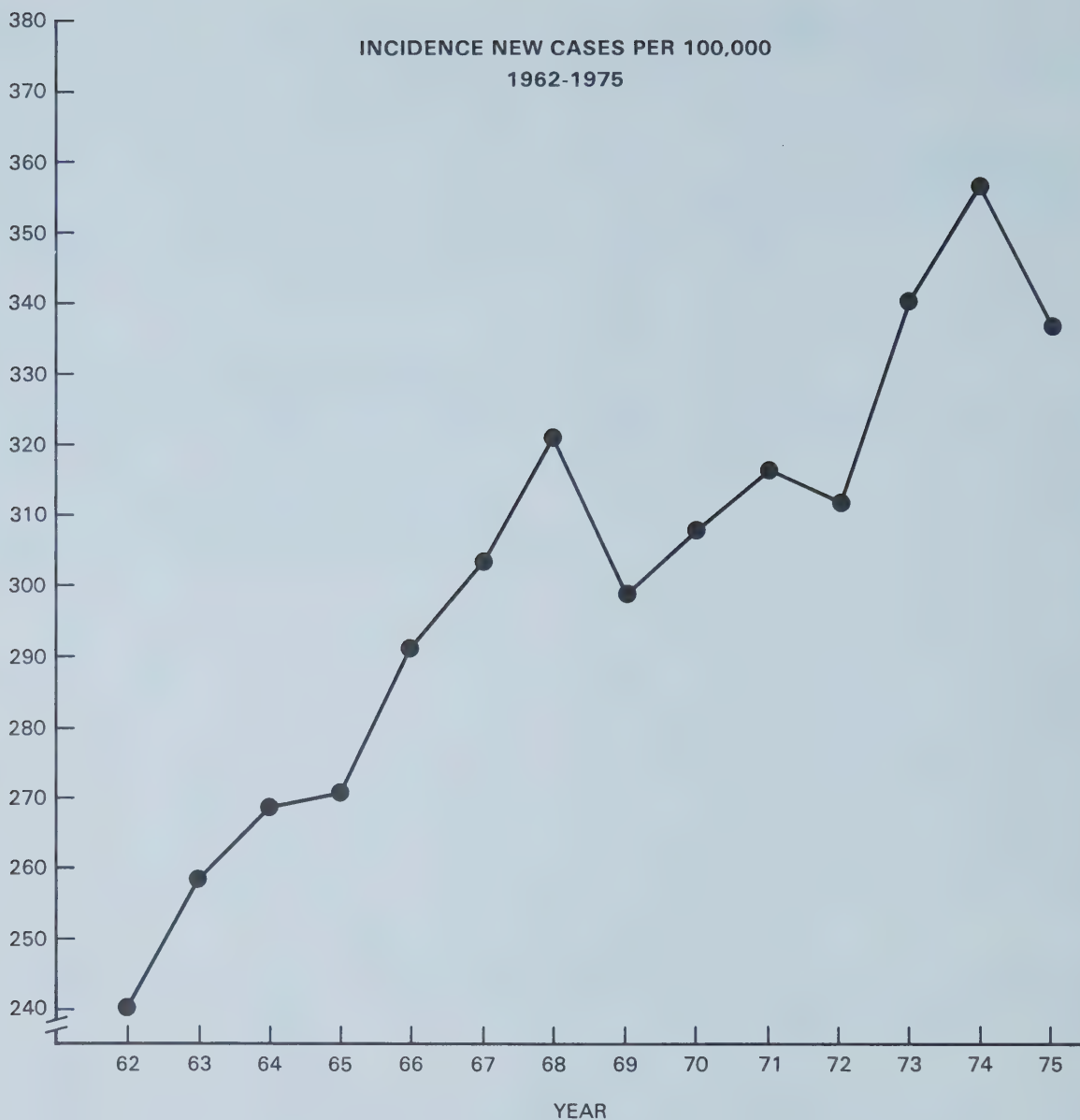
	1973	% of Total	1974	% of Total	1975	% of Total
New registration	4839	84.5	5311	87.2	5500	93.9
Pathology reports only	552	9.6	327	5.4	355	6.1
Vital statistics only	336	5.9	450	7.4		
TOTALS	5727	100.0	6088	100.0	5855	100.0

MALIGNANT CASES

	% Change (+ increase) (- decrease)		% Change (+ increase) (- decrease)		% Change (+ increase) (- decrease)		% Change (+ increase) (- decrease)		% Change (+ increase) (- decrease)		
	1970		1971		1972		1973		1974		1975
New malignant cases referred to Clinics	3833	+6.8	4093	+3.8	4247	+6.5	4523	+11.4	5040	+2.6	5172
Cases who developed a second malignancy	251	-15.1	213	+14.5	244	+29.5	316	-14.2	271	+21.0	328
Total new malignancies	4084	+5.5	4306		4491	+7.8	4839	+9.8	5311	+3.6	5500
Non-registered malignant cases by											
Pathology and autopsy report	594	-3.2	575	-19.5	463	+19.2	552	-40.8	327		
Reported by Vital Statistics	252	+6.7	269	+20.4	324	+3.7	336	+33.9	450		355
Total non-registered malignant cases	846	N/A	844	-6.7	787	+12.8	888	-12.5	777	-54.3	355
Total number of new malignant cases discovered in Alberta	4930	+4.5	5150	+2.5	5278	+8.5	5727	+6.3	6088	-3.8	5855
Cases treated elsewhere reporting to clinics	239	12.1	268	+14.5	307	+18.6	364				

POPULATION DATA (IN THOUSANDS)

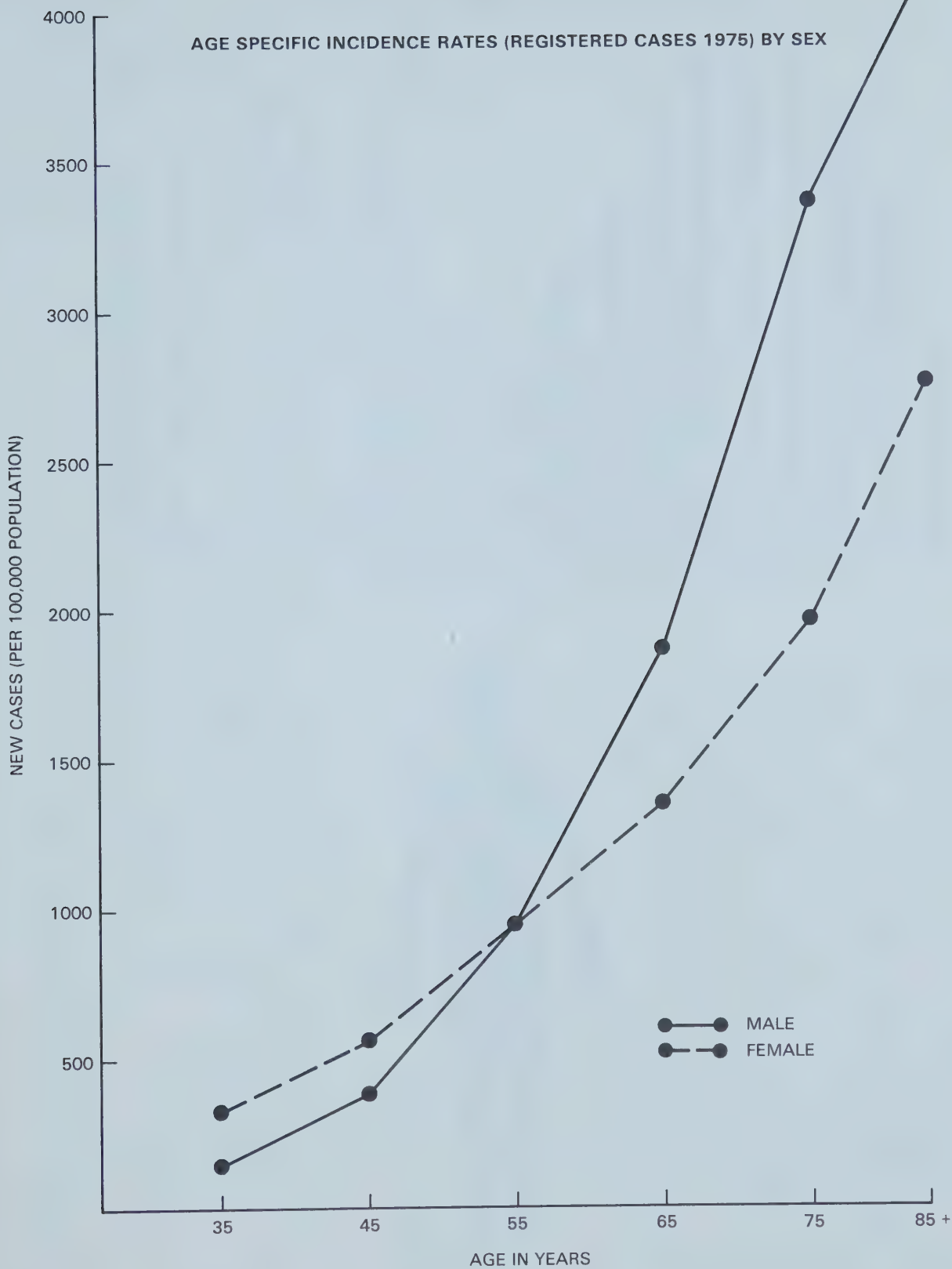
Age	Male	Female	Total	% Total
0-4	76.9	72.4	149.3	8.6
5-9	81.4	78.1	159.5	9.2
10-14	94.6	90.8	185.4	10.7
15-19	92.9	88.3	181.2	10.4
20-24	82.0	80.0	162.0	9.3
25-29	71.4	72.3	143.7	8.3
30-34	59.8	58.0	117.8	6.8
35-39	51.3	48.9	100.2	5.8
40-44	51.6	46.9	98.5	5.7
45-49	48.5	45.2	93.7	5.4
50-54	42.1	42.4	84.5	4.9
55-59	35.2	35.4	70.6	4.1
60-64	30.0	30.3	60.3	3.5
65-69	23.2	23.2	46.4	2.7
70-74	17.8	17.7	35.5	2.0
75-79	11.0	12.5	23.5	1.4
80-84	6.8	8.1	14.9	0.9
85-89	3.7	4.5	8.2	0.5
90 +	1.5	2.0	3.5	0.2
TOTAL	881.7	857.0	1,738.7	100.0



**INCIDENCE RATES—ALL SITES
ALL REPORTED CASES 1962-1975**

Year	Rate/100,000 Population	Year	Rate/100,000 Population
1962	240.7	1969	298.1
1963	258.9	1970	308.1
1964	268.5	1971	316.4
1965	270.4	1972	312.4
1966	293.3	1973	340.5
1967	304.6	1974	356.0
1968	320.5	1975	336.7

AGE SPECIFIC INCIDENCE RATES (REGISTERED CASES 1975) BY SEX



COMPARISON OF MALE AND FEMALE INCIDENCE 1975
TOTAL INCIDENCE PER 100,000

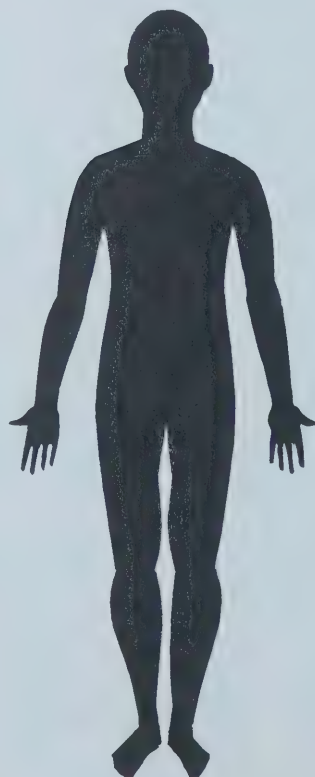
Age	Males	Females	Ratio M/F
0- 4	22.1	24.9	0.9
5- 9	9.8	10.2	1.0
10-14	11.6	11.0	1.1
15-19	16.2	14.7	1.1
20-24	25.6	68.8	0.4
25-29	50.4	224.1	0.2
30-34	81.9	258.6	0.3
35-39	130.6	276.1	0.5
40-44	172.5	349.7	0.5
45-49	305.2	502.2	0.6
50-54	503.6	629.7	0.8
55-59	784.1	841.8	0.9
60-64	1126.7	1042.9	1.1
65-69	1663.8	1275.9	1.3
70-74	2191.0	1429.4	1.5
75-79	3009.1	1872.0	1.6
80-84	3985.3	2123.4	1.9
85-89	3973.0	2933.3	1.4
90+	4533.3	2450.0	1.9

RELATIVE FREQUENCY OF REGISTERED CANCER CASES

ALBERTA 1975

Buccal Cavity, Pharynx	4.8
Oesophagus	0.8
Stomach	4.2
Small, Large Intestine	6.2
Rectum	4.0
Pancreas	3.6
Gallbladder	0.3
Larynx, Trachea, Bronchus, Lung	13.2
Brain, Nervous System	2.1
Skin, Melanoma	25.1
Breast	0.2
Prostate, Testis	13.7
Bladder	4.3
Kidney	2.6
Thyroid	0.5
Hodgkins	5.0
Non-Hodgkins	
Multiple Myeloma	
Leukemia	2.9
Bone, Connective Tissue	1.1
Other Primary Sites	4.3
Primary Unknown	

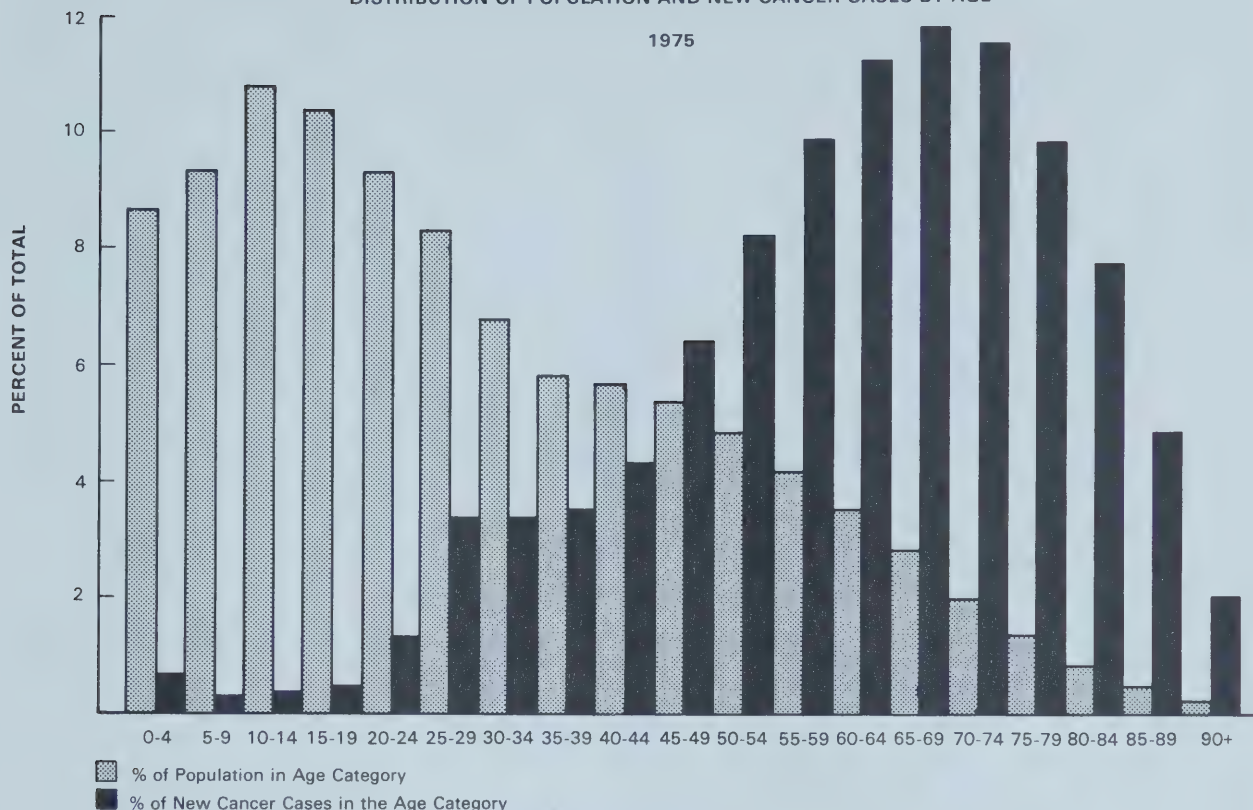
MALE



1.5	Buccal Cavity, Pharynx
0.3	Oesophagus
2.1	Stomach
6.2	Small, Large Intestine
3.0	Rectum
1.7	Pancreas
0.9	Gallbladder
3.2	Larynx, Trachea, Bronchus, Lung
1.1	Brain, Nervous System
20.5	Skin, Melanoma
20.3	Breast
13.3	Cervix Invasive
	Uterus
	Ovary
	Fallopian Tube
	Other Female Organs
1.5	Bladder
1.3	Kidney
1.1	Thyroid
13.8	Cervix In-Situ
2.6	Hodgkins
	Non-Hodgkins
	Multiple Myeloma
1.9	Leukemia
0.7	Bone, Connective Tissue
3.1	Other Primary Sites
	Primary Unknown

FEMALE

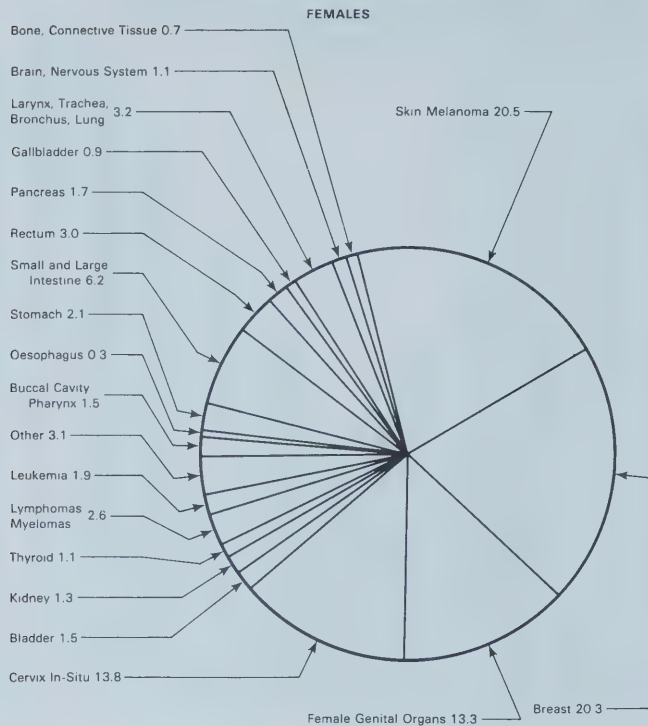
DISTRIBUTION OF POPULATION AND NEW CANCER CASES BY AGE



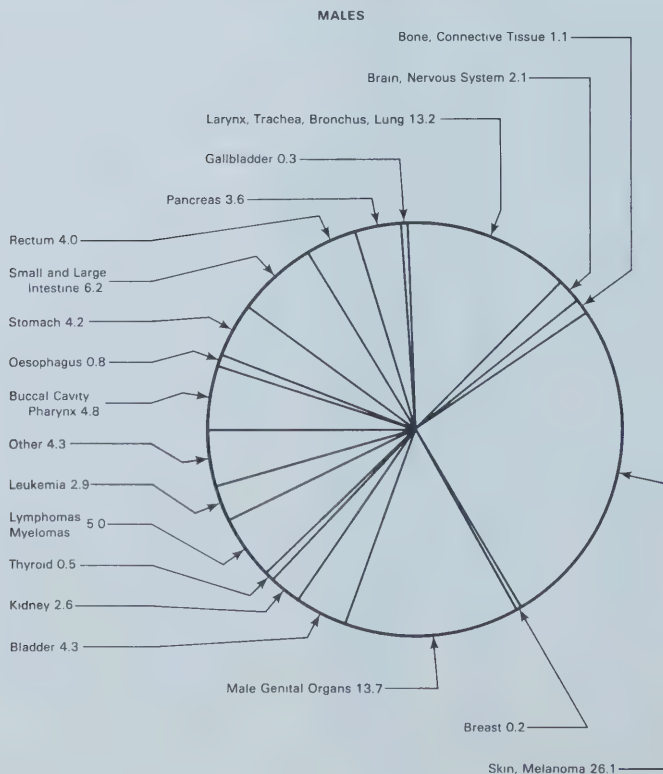
AGE DISTRIBUTION OF INITIAL REGISTRATIONS IN ALBERTA 1975

Age	% of Pop.	Male No.	% of Total Male Cancer	Female No.	% of Total Female Cancer	Totals No.	% of All Cancers
0- 4	8.6	17	0.6	18	0.6	35	0.6
5- 9	9.2	8	0.3	8	0.3	16	0.3
10-14	10.7	11	0.4	10	0.3	21	0.4
15-19	10.4	15	0.5	13	0.4	28	0.5
20-24	9.3	21	0.7	55	1.9	76	1.3
25-29	8.3	36	1.3	162	5.5	198	3.4
30-34	6.8	49	1.7	150	5.1	199	3.4
35-39	5.8	67	2.3	135	4.6	202	3.5
40-44	5.7	89	3.1	164	5.5	253	4.3
45-49	5.4	148	5.1	227	7.7	375	6.4
50-54	4.9	212	7.4	267	9.0	479	8.2
55-59	4.1	276	9.6	298	10.1	574	9.8
60-64	3.5	338	11.7	316	10.7	654	11.2
65-69	2.7	386	13.4	296	10.0	682	11.7
70-74	2.0	390	13.5	253	8.6	643	11.0
75-79	1.4	331	11.5	234	7.9	565	9.7
80-84	0.9	271	9.4	172	5.8	443	7.6
85-89	0.5	147	5.1	132	4.5	279	4.8
90+	0.2	68	2.4	49	1.7	117	2.0
Total	100.0	2880*		2959*		5839*	
		* 8 missing age		* 8 missing age		* 16 missing age	

RELATIVE FREQUENCY OF NEW CASES OF CANCER 1975



RELATIVE FREQUENCY OF NEW CASES OF CANCER 1975

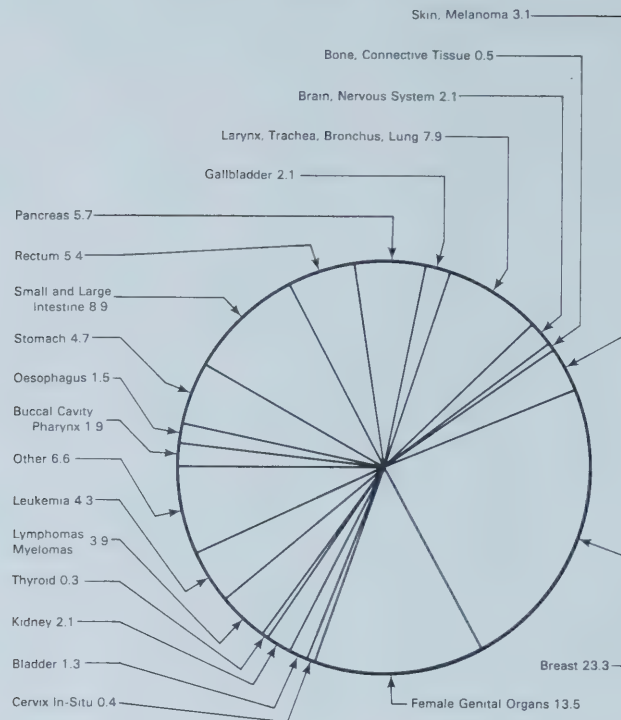


MORTALITY BY SITE AND SEX 1975

Site	Male	%	Female	%	Total	%
Buccal Cavity, Pharynx	42	3.2	18	1.9	60	2.6
Oesophagus	23	1.7	15	1.5	38	1.7
Stomach	97	7.4	46	4.7	143	6.2
Small Intestine	3	0.2	3	0.3	6	0.3
Large Intestine	95	7.2	83	8.6	178	7.8
Rectum	62	4.7	52	5.4	114	5.0
Pancreas	87	6.6	55	5.7	142	6.2
Gallbladder	8	0.6	20	2.1	28	1.2
Larynx	19	1.4	1	0.1	20	0.9
Trachea, Bronchus, Lung	272	20.6	76	7.8	348	15.2
Brain, Nervous System	43	3.3	20	2.1	63	2.8
Bone, Connective Tissue	12	0.9	5	0.5	17	0.7
Skin	50	3.8	25	2.6	75	3.3
Melanoma	13	1.0	10	1	23	1.0
Breast	3	0.2	226	23.3	229	10.0
Prostate	171	13.0			171	7.5
Testis	6	0.5			6	0.3
Cervix Invasive			35	3.6	35	1.5
Cervix In-Situ			4	0.4	4	0.2
Uterus			37	3.8	37	1.6
Ovary, Fallopian Tube			48	4.9	48	2.1
Other Female Organs			11	1.1	11	0.5
Bladder	45	3.4	13	1.3	58	2.5
Kidney	44	3.3	20	2.1	64	2.8
Thyroid	3	0.2	3	0.3	6	0.3
Hodgkins	10	0.8	2	0.2	12	0.5
Non-Hodgkins Lymphoma	43	3.3	24	2.5	67	2.9
Multiple Myeloma	22	1.7	12	1.2	34	1.5
Leukemia: Acute Lymphatic	8	0.6	11	1.1	19	0.8
Chronic Lymphatic	16	1.2	12	1.2	28	1.2
Acute Myeloid	13	1.0	12	1.2	25	1.1
Chronic Myeloid	7	0.5	4	0.4	11	0.5
Other	10	0.8	3	0.3	13	0.6
Other Primary Sites	30	2.3	21	2.2	51	2.2
Primary Site Unknown	62	4.7	43	4.4	105	4.6
TOTAL	1319	100.1*	970	99.8*	2289	100.1*
*due to rounding off.						

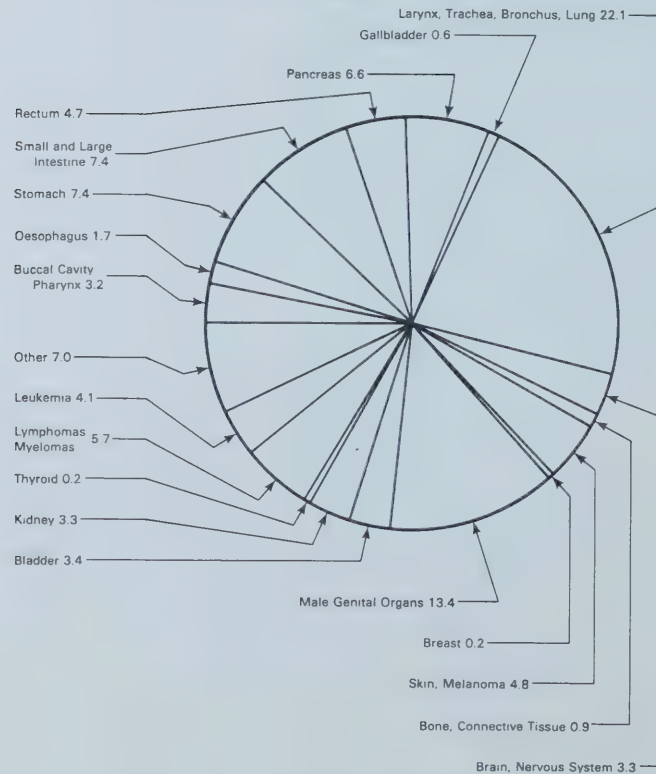
RELATIVE FREQUENCY OF CANCER DEATHS FOR 1975

FEMALES



RELATIVE FREQUENCY OF CANCER DEATHS FOR 1975

MALES



NEW REGISTRATIONS BY AGE AND SEX

1975

	0-34		35-44		45-54		55-64		65-74		75-84		85+		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Buccal Cavity, Pharynx	3	5	9	3	28	5	41	11	29	10	23	5	7	5	140	44
Oesophagus			2		5	2	7		7		6	1	1		22	9
Stomach	1	2	6	1	16	6	25	7	33	18	30	19	11	8	122	61
Small Intestine					1			1						2	1	3
Large Intestine	5	3	4	9	19	23	33	26	54	48	43	46	19	25	177	180
Rectum	2	1	4	5	14	14	36	17	31	22	23	22	5	8	115	89
Pancreas	1		4		11	3	21	10	36	17	26	12	5	6	104	48
Gallbladder			1		1	2		4	4	8	4	11		1	10	26
Larynx	1			1	7		6	1	10	1	4				28	3
Trachea, Bronchus, Lung			12	3	43	18	98	25	125	26	60	13	14	7	352	92
Brain, Nervous System	19	14	9	4	8	3	15	7	8	3	1	1			60	32
Bone, Connective Tissue	14	8	1	2	4	5	5	3	3	2	2	1	2	1	31	22
Skin	15	26	51	38	117	106	167	124	161	120	156	105	46	47	713	566
Melanoma	6	12	6	4	8	10	7	7	3	6	5	1	2	2	37	42
Breast		18	1	79	1	146	2	151	2	113	1	68		27	7	602
Prostate			1		6		37		131		132		57		364	
Testis	18		6		4		2		1						31	
Cervix, Invasive						20		16		8			2			84
Cervix In-Situ		241		104		40		15		1			1			404
Uterus		2		7		32		90		46		19		3		199
Ovary, Fallopian Tube		10		7		21		27		14		5		6		90
Other Female Organs				1		4		5		6		3		2		21
Bladder	4		3	3	13	3	26	16	41	6	26	10	12	7	125	45
Kidney	1	4	2	1	12	7	28	7	21	15	5	6	6		75	40
Thyroid	5	19	2	4	4	4	2	3	1	2		1			14	33
Hodgkins	29	10	5	1	3	2			4	2			2		43	15
Non-Hodgkins Lymphoma	10	3	11	1	5	4	16	12	20	11	8	7	4	4	74	42
Multiple Myeloma					4	1	5	4	5	9	9	4	5	2	28	20
Leukemia: Acute Lymphatic	3	9							1						3	10
Chronic Lymphatic			1		7	1	12	3	4	8	7	4	5	2	36	18
Acute Myeloid	5	3	2		3	2	4	3	3	4	3	1	1		21	13
Chronic Myeloid	2		4	2	1	1	1	1	2	1	3	1	1	1	14	7
Other	2	3		1	1			1	1		5	2	1		10	7
Other Primary Sites	8	6	3	4	6	3	8	9	8	7	6	6	4	3	43	38
Primary Site Unknown	3	1	6	1	8	6	10	8	28	14	20	16	5	8	80	54

INCIDENCE RATES BY AGE AND SEX 1975

PER 100.00 POPULATION

	0-34		35-44		45-54		55-64		65-74		75-84		85+		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Buccal Cavity, Pharynx	0.5	0.9	8.7	3.1	30.9	5.7	62.9	16.7	70.7	24.5	129.2	24.3	134.6	76.9	15.9	5.1
Oesophagus			1.9		5.5	2.3	10.7		17.1		29.1	19.2	15.4	2.5	1.1	
Stomach	0.2	0.4	5.8	1.0	17.7	6.8	38.3	10.7	80.5	44.0	168.5	92.2	211.5	123.1	13.8	7.1
Small Intestine					1.1			1.5						30.8	0.1	0.4
Large Intestine	0.9	0.6	3.9	9.4	21.0	26.3	50.6	39.6	131.7	117.4	241.6	223.3	365.4	384.6	20.2	21.0
Rectum	0.4	0.2	3.9	5.2	15.5	16.0	55.2	25.9	75.6	53.8	129.2	106.8	96.2	123.1	13.0	10.4
Pancreas	0.2		3.9		12.1	3.4	32.2	15.2	87.8	41.6	146.1	58.3	96.2	92.3	11.8	5.7
Gallbladder			1.0		1.1	2.3		6.1	9.8	19.6	22.5	53.4		15.4	1.1	3.0
Larynx	0.2			1.0	7.7		9.2	1.5	24.4	2.4	22.5				3.2	0.4
Trachea, Bronchus, Lung			11.7	3.1	47.5	20.5	150.3	38.1	304.9	63.6	337.1	63.1	269.2	107.7	40.1	10.7
Brain, Nervous System	3.4	2.6	8.7	4.2	8.8	3.4	23.0	10.7	19.5	7.3	5.6	4.9			6.8	3.7
Bone, Connective Tissue	2.5	1.5	1.0	2.1	4.4	5.7	7.7	4.6	7.3	4.9	11.2	4.9	38.5	15.4	3.5	2.6
Skin	2.7	4.8	49.6	39.7	129.1	121.0	256.1	188.7	392.7	293.4	876.4	509.7	884.6	723.1	81.3	66.2
Melanoma	1.1	2.2	5.8	4.2	8.8	11.4	10.7	10.7	7.3	14.7	28.1	4.9	38.5	30.8	4.2	4.9
Breast		3.3	1.0	82.5	1.1	166.7	3.1	229.8	4.9	276.3	5.6	330.1		415.4	0.8	70.2
Prostate			1.0		6.6		56.7		319.5		741.6		1096.2		41.3	
Testis	3.2		5.8		4.4		3.1		2.4						3.5	
Cervix Invasive		3.0				22.8		24.4		19.6		43.7		30.8		9.8
Cervix In-Situ		44.6		108.6		45.7		22.8		2.5		9.7		15.4		47.7
Uterus		0.4		7.3		36.5		137.0		112.5		92.2		46.2		23.2
Ovary, Fallopian Tube		1.9		7.3		24.0		41.1		34.2		24.3		92.3		10.6
Other Female Organs				1.0		4.6		7.6		14.7		14.7		30.8		2.5
Bladder	0.7		2.9	3.1	14.4	3.4	39.9	24.4	100.0	14.7	146.1	48.5	107.7	14.2	5.3	
Kidney	0.2	0.7	1.9	1.0	13.2	8.0	42.9	10.7	51.2	36.7	28.1	29.1	115.4		8.5	4.7
Thyroid	0.9	3.5	1.9	4.2	4.4	4.6	3.1	4.6	2.4	4.9		4.9		1.6	3.9	
Hodgkins	5.2	1.9	4.9	1.0	3.3	2.3			9.8	4.9			38.5		4.9	1.8
Non-Hodgkins Lymphoma	1.8	0.6	10.7	1.0	5.5	4.6	24.5	18.3	48.8	26.9	44.9	34.0	76.9	61.5	8.4	4.9
Multiple Myeloma					4.4	1.1	7.7	6.1	12.2	22.0	50.6	19.4	96.2	30.8	3.2	2.3
Leukemia: Acute Lymphatic	0.5	1.7								2.4					0.3	1.2
Chronic Lymphatic			1.0		7.7	1.1	18.4	4.6	9.8	19.6	39.3	19.4	96.2	30.8	4.1	2.1
Acute Myeloid	0.9	0.6	1.9		3.3	2.3	6.1	4.6	7.3	9.8	16.9	4.9	19.2		2.4	1.5
Chronic Myeloid	0.4		3.9	2.1	1.1	1.1	1.5	4.9	2.4	16.9	4.9	19.2	15.4	1.6	0.8	
Other	0.4	0.6		1.0	1.1			1.5	2.4		28.1	9.7	19.2		1.1	0.8
Other Primary Sites	1.4	1.1	2.9	4.2	6.6	3.4	12.3	13.7	19.5	17.1	33.7	29.1	76.9	46.1	4.9	4.4
Primary Site Unknown	0.5	0.2	5.8	1.0	8.3	6.8	15.3	12.2	68.3	34.2	112.4	77.7	96.2	123.1	9.2	6.3

ALBERTA CANCER STATISTICS 1976

SOURCES OF INFORMATION

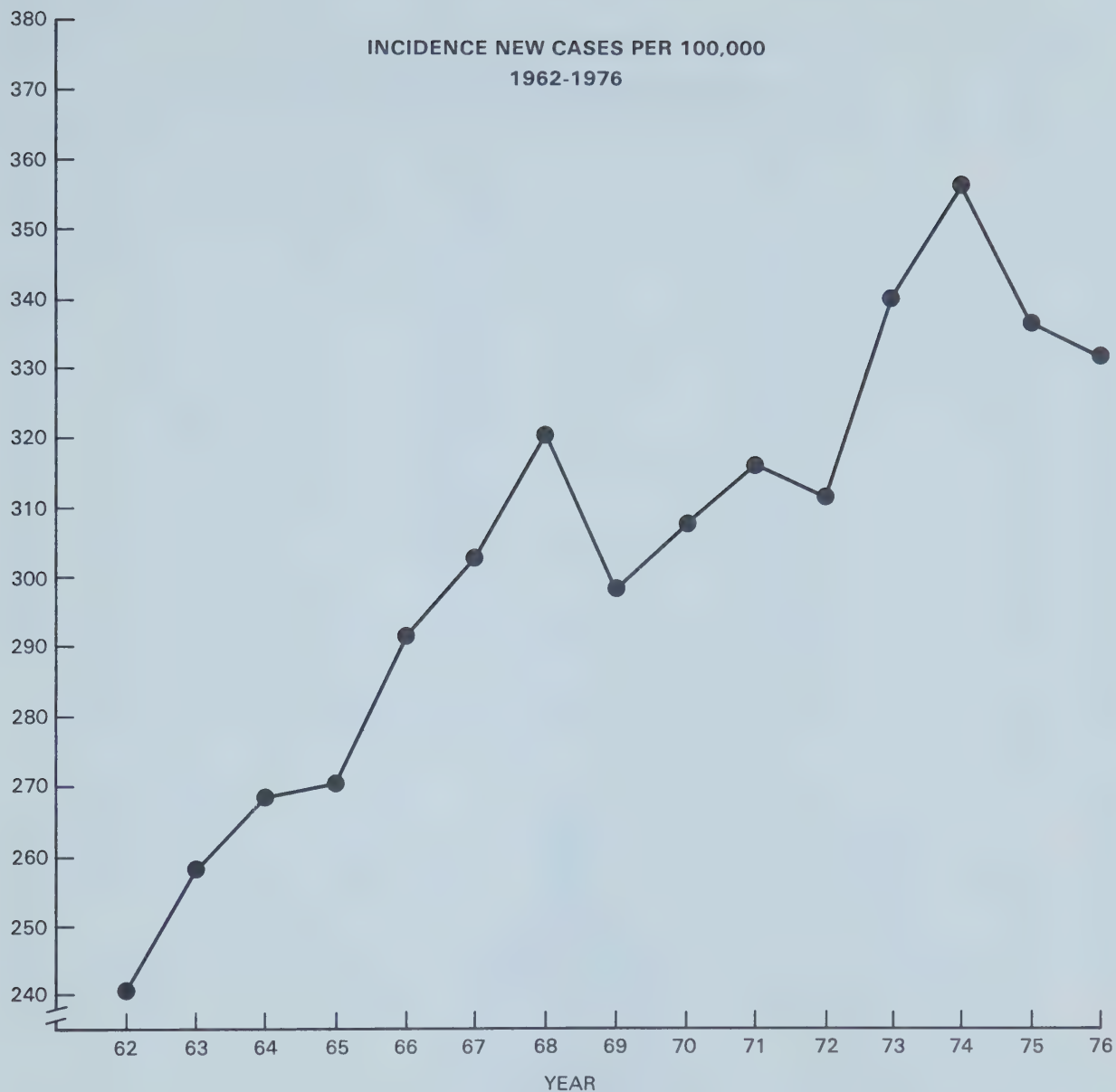
	1973	% of Total	1974	% of Total	1975	% of Total	1976	% of Total
New registration	4839	84.5	5311	87.2	5500	93.9	5598	95.2
Pathology reports only	552	9.6	327	5.4	355	6.1	283	4.8
Vital statistics only	336	5.9	450	7.4				
TOTALS	5727	100.0	6088	100.0	5855	100.0	5881	100.0

MALIGNANT CASES

	% Change (+ increase) (- decrease)		% Change (+ increase) (- decrease)		% Change (+ increase) (- decrease)		% Change (+ increase) (- decrease)		% Change (+ increase) (- decrease)		% Change (+ increase) (- decrease)		
	1970		1971		1972		1973		1974		1975		1976
New malignant cases referred to Clinics	3833	+6.8	4093	+3.8	4247	+6.5	4523	+11.4	5040	+2.6	5172	+ 0.5	5197
Cases who developed a second malignancy	251	-15.1	213	+14.5	244	+29.5	316	-14.2	271	+21.0	328	+ 22.3	401
Total new malignancies	4084	+5.5	4306		4491	+7.8	4839	+9.8	5311	+3.6	5500	+ 1.8	5598
Non-registered malignant cases by													
Pathology and autopsy report	594	-3.2	575	-19.5	463	+19.2	552	-40.8	327				
Reported by Vital Statistics	252	+6.7	269	+20.4	324	+3.7	336	+33.9	450		355	-20.3	283
Total non-registered malignant cases	846	N%A	844	-6.7	787	+12.8	888	-12.5	777	-54.3	355	-20.3	283
Total number of new malignant cases discovered in Alberta	4930	+4.5	5150	+2.5	5278	+8.5	5727	+6.3	6088	-3.8	5855	+ 0.4	5881
Cases treated elsewhere reporting to clinics	239	+12.1	268	+14.5	307	+18.6	364						
Out of Province cases													416

POPULATION DATA (IN THOUSANDS)

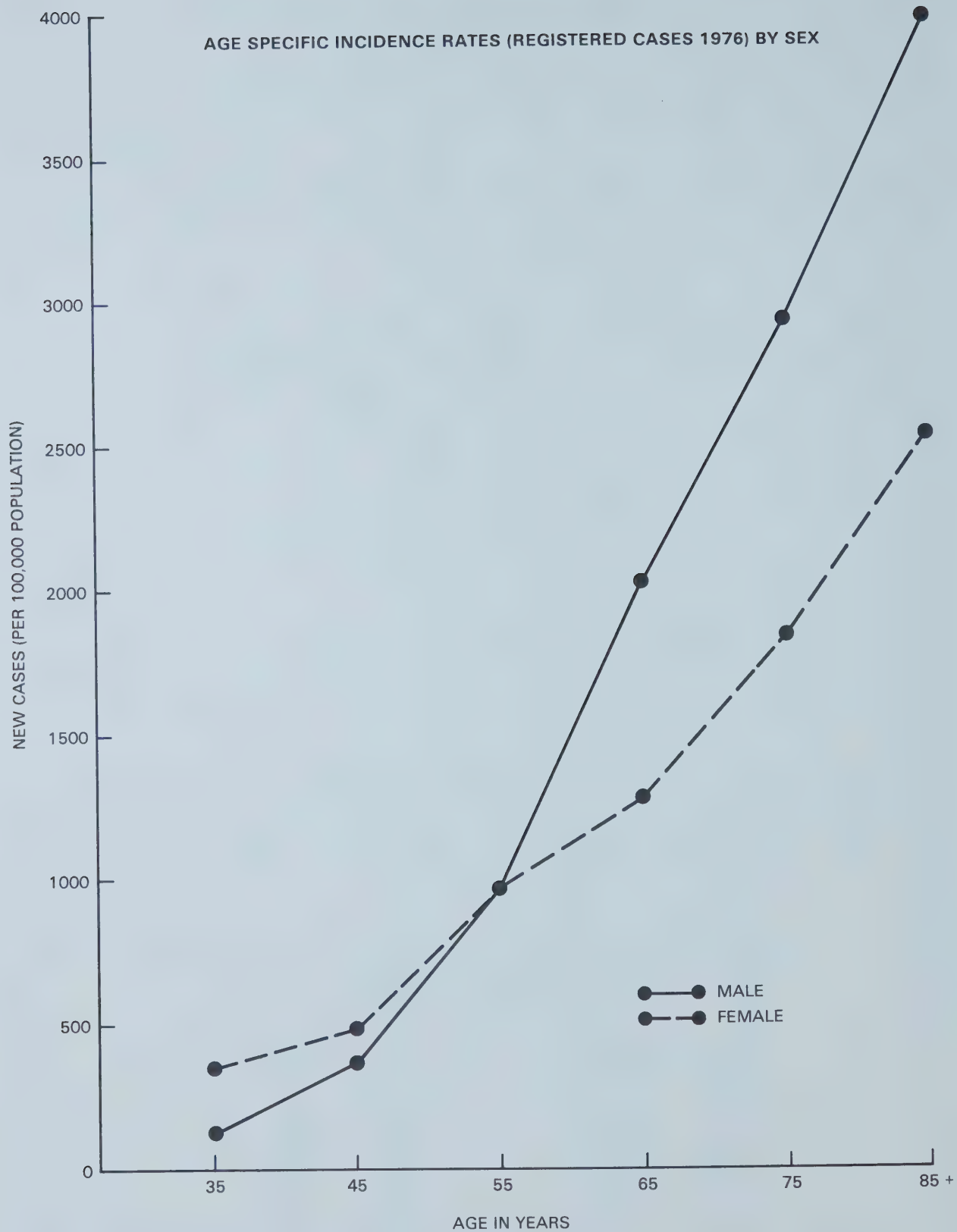
AGE	MALE	FEMALE	TOTAL	% TOTAL
0- 4	77.5	73.3	150.8	8.5
5- 9	79.8	75.9	155.7	8.8
10-14	93.7	90.1	183.8	10.4
15-19	94.8	90.0	184.8	10.5
20-24	84.9	82.1	167.0	9.4
25-29	74.5	75.3	149.8	8.5
30-34	62.6	61.0	123.6	7.0
35-39	52.2	50.2	102.4	5.8
40-44	51.8	47.4	99.2	5.6
45-49	49.2	45.4	94.6	5.4
50-54	43.3	43.4	86.7	4.9
55-59	35.9	36.4	72.3	4.1
60-64	30.7	31.3	62.0	3.5
65-69	23.7	24.2	47.9	2.7
70-74	18.3	18.4	36.7	2.1
75-79	11.4	13.0	24.4	1.4
80-84	6.7	8.4	15.1	0.9
85-89	3.7	4.6	8.3	0.5
90+	1.6	2.0	3.6	0.2
TOTAL	896.3	872.4	1768.7	100.2



**INCIDENCE RATES—ALL SITES
ALL REPORTED CASES 1962-1976**

Year	Rate/100,000 Population	Year	Rate/100,000 Population
1962	240.7	1969	298.1
1963	258.9	1970	308.1
1964	268.5	1971	316.4
1965	270.4	1972	312.4
1966	293.3	1973	340.5
1967	304.6	1974	356.0
1968	320.5	1975	336.7
		1976	332.5

AGE SPECIFIC INCIDENCE RATES (REGISTERED CASES 1976) BY SEX



COMPARISON OF MALE AND FEMALE INCIDENCE 1976

TOTAL INCIDENCE PER 100,000

Age	Males	Females	Ratio M/F
0- 4	18.1	12.3	1.5
5- 9	7.5	7.9	0.9
10-14	7.5	12.2	0.6
15-19	14.8	17.8	0.8
20-24	31.8	102.3	0.3
25-29	44.3	219.1	0.2
30-34	60.7	259.0	0.2
35-39	109.2	334.7	0.3
40-44	166.0	358.6	0.5
45-49	290.6	416.3	0.7
50-54	459.6	578.3	0.8
55-59	754.9	835.1	0.9
60-64	1231.3	1137.4	1.1
65-69	1776.3	1227.2	1.4
70-74	2398.9	1347.8	1.8
75-79	2657.8	1600.0	1.7
80-84	3432.8	2214.2	1.6
85-89	4162.1	2521.7	1.7
90+	3687.5	2650.0	1.4

RELATIVE FREQUENCY OF REGISTERED CANCER CASES

ALBERTA 1976

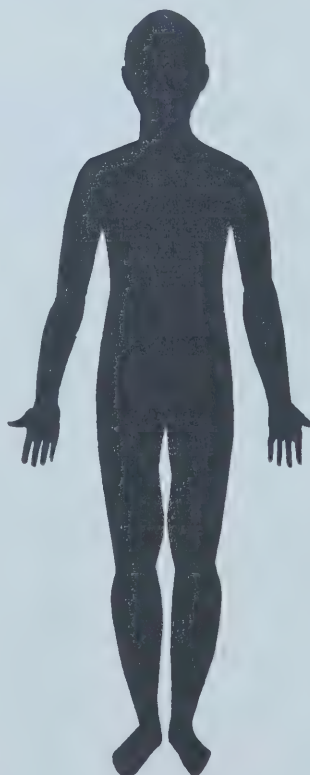
Buccal, Cavity, Pharynx	3.9
Oesophagus	0.9
Stomach	4.5
Small, Large Intestine	5.9
Rectum	4.4
Pancreas	2.6
Gallbladder	0.4
Larynx, Trachea, Bronchus, Lung	13.5
Brain, Nervous System	2.2
Skin, Melanoma	26.7
Breast	0.1

Prostate, Testis 13.9

Bladder	5.4
Kidney	2.6
Thyroid	0.5

Hodgkins	4.1
Non-Hodgkins	
Multiple Myeloma	
Leukemia	2.8
Bone, Connective Tissue	0.9
Other Primary Sites	4.9
Primary Unknown	

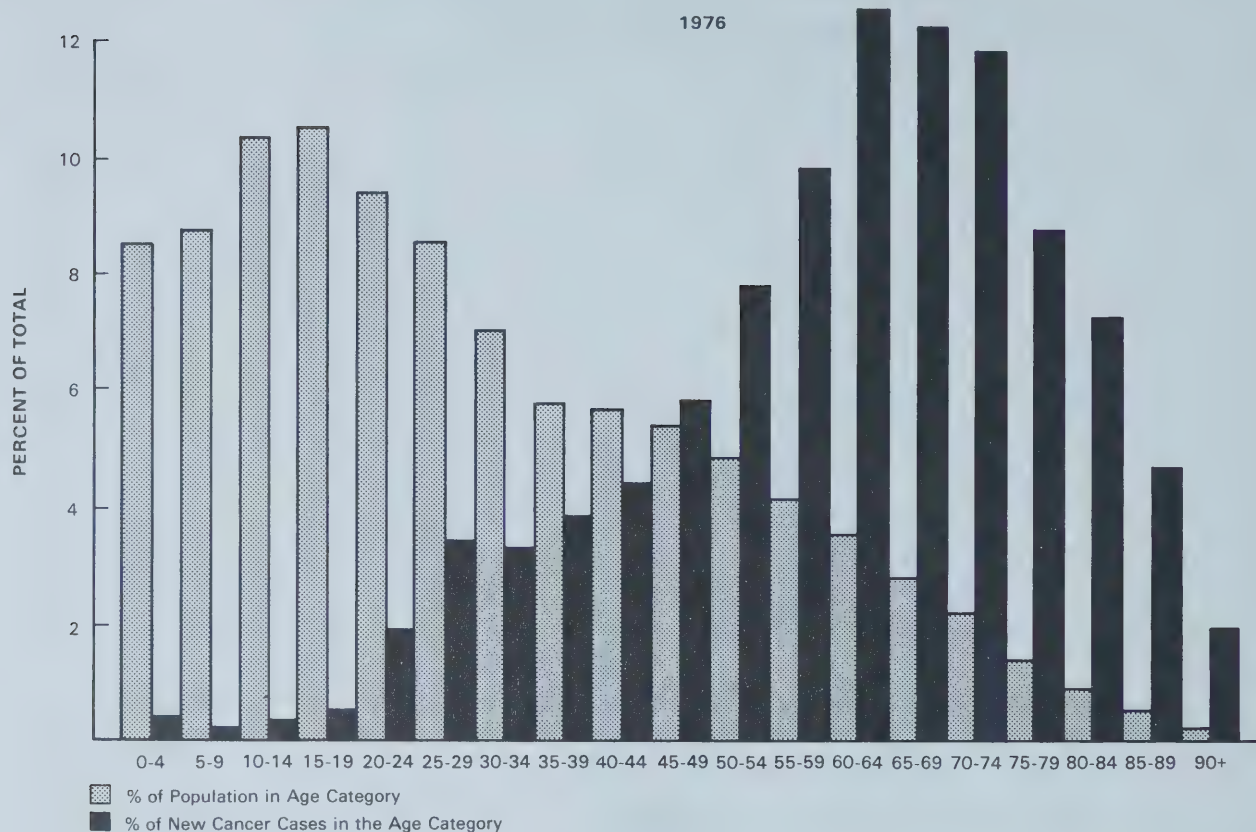
MALE



0.8	Buccal Cavity, Pharynx
0.2	Oesophagus
2.2	Stomach
6.0	Small, Large Intestine
2.8	Rectum
1.7	Pancreas
0.9	Gallbladder
3.2	Larynx, Trachea, Bronchus, Lung
1.3	Brain, Nervous system
19.6	Skin, Melanoma
18.8	Breast
12.4	Cervix Invasive
	Uterus
	Ovary
	Fallopian Tube
	Other Female Organs
1.5	Bladder
1.3	Kidney
1.6	Thyroid
16.2	Cervix In-Situ
3.3	Hodgkins
	Non-Hodgkins
	Multiple Myeloma
1.6	Leukemia
0.7	Bone, Connective Tissue
3.8	Other Primary Sites
	Primary Unknown

FEMALE

DISTRIBUTION OF POPULATION AND NEW CANCER CASES BY AGE

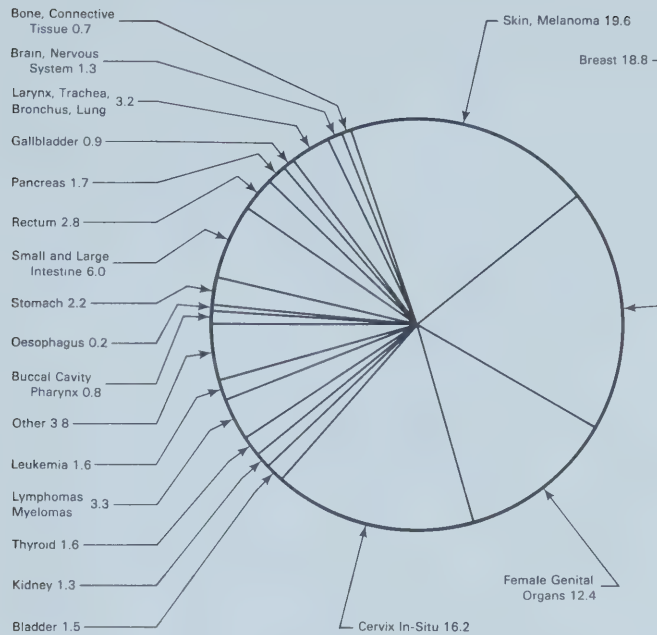


AGE DISTRIBUTION OF INITIAL REGISTRATIONS IN ALBERTA 1976

Age	% of Pop.	Male		Female		Totals	
		No.	% of TOTAL Male Cancer	No.	% of TOTAL Female Cancer	No.	% of ALL Cancers
0- 4	8.5	14	0.5	9	0.3	23	0.4
5- 9	8.8	6	0.2	6	0.2	12	0.2
10-14	10.4	7	0.2	11	0.4	18	0.3
15-19	10.5	14	0.5	16	0.5	30	0.5
20-24	9.4	27	0.9	84	2.8	111	1.9
25-29	8.5	33	1.1	165	5.5	198	3.4
30-34	7.0	38	1.3	158	5.3	196	3.3
35-39	5.8	57	2.0	168	5.6	225	3.8
40-44	5.6	86	3.0	170	5.7	256	4.4
45-49	5.4	143	5.0	189	6.3	332	5.7
50-54	4.9	199	6.9	251	8.4	450	7.7
55-59	4.1	271	9.4	304	10.2	575	9.8
60-64	3.5	378	13.1	356	11.9	734	12.5
65-69	2.7	421	14.6	297	9.9	718	12.2
70-74	2.1	439	15.2	248	8.3	687	11.7
75-79	1.4	303	10.5	208	6.9	511	8.7
80-84	0.9	230	8.0	186	6.2	416	7.1
85-89	0.5	154	5.3	116	3.9	270	4.6
90+	0.2	59	2.0	53	1.8	112	1.9
Total		2879		2995		5874	

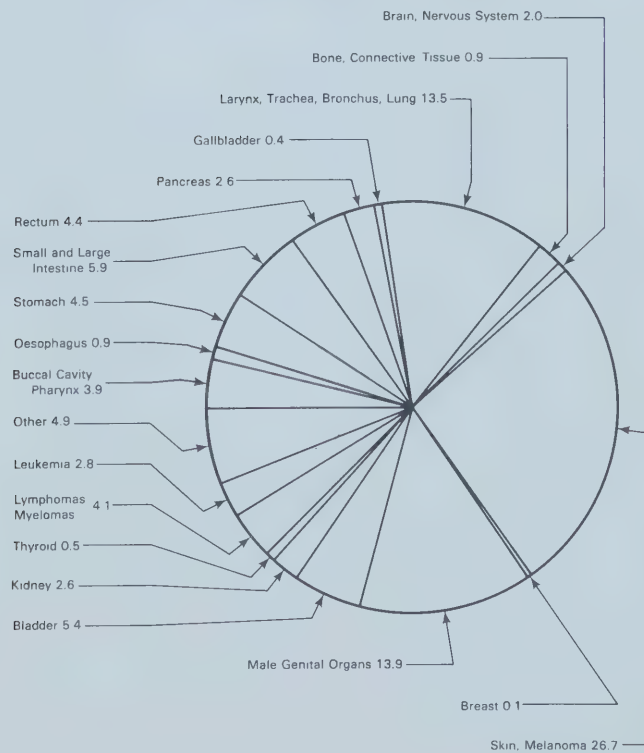
RELATIVE FREQUENCY OF NEW CASES OF CANCER 1976

FEMALES



RELATIVE FREQUENCY OF NEW CASES OF CANCER 1976

MALES

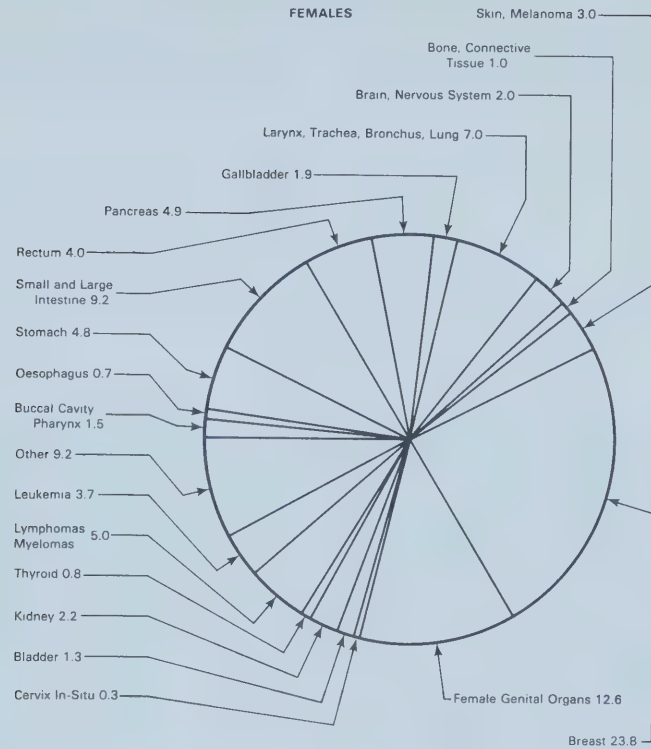


MORTALITY BY SITE AND SEX 1976

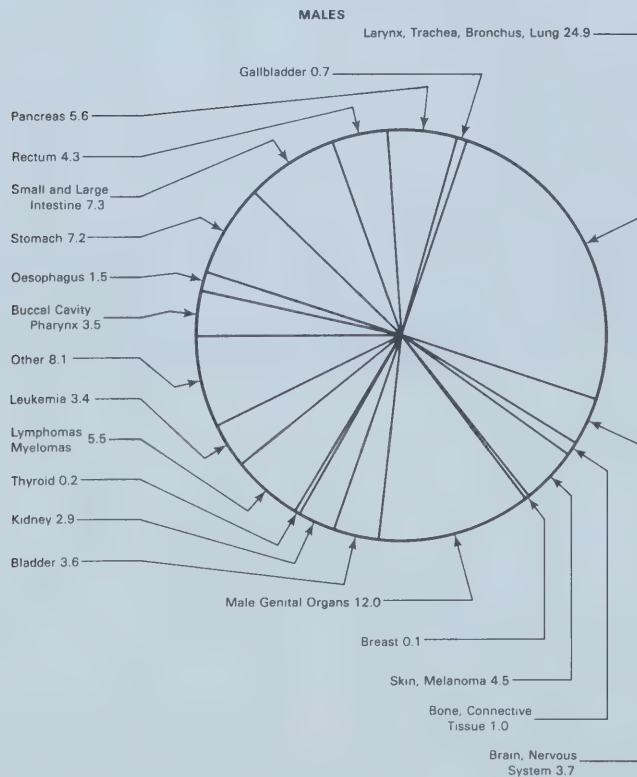
Site	Male	%	Female	%	Total	%
Buccal Cavity, Pharynx	43	3.5	13	1.5	56	2.6
Oesophagus	18	1.5	6	0.7	24	1.1
Stomach	89	7.2	43	4.8	135	6.3
Small Intestine	3	0.2	2	0.2	5	0.2
Large Intestine	87	7.1	80	8.9	167	7.8
Rectum	53	4.3	36	4.0	89	4.2
Pancreas	69	5.6	44	4.9	113	5.3
Gallbladder	8	0.7	17	1.9	25	1.2
Larynx	10	0.8	0	0	10	0.5
Trachea, Bronchus, Lung	296	24.1	63	7.0	360	16.9
Brain, Nervous System	46	3.7	25	2.8	71	3.3
Bone, Connective Tissue	12	1.0	9	1.0	21	1.0
Skin	52	4.2	25	2.8	77	3.6
Melanoma	3	0.2	4	0.4	7	0.3
Breast	1	0.1	213	23.8	214	10.0
Prostate	141	11.5			141	6.6
Testis	6	0.5			6	0.3
Cervix Invasive			35	3.9	35	1.6
Cervix In-Situ			3	0.3	3	0.1
Uterus			22	2.5	22	1.0
Ovary, Fallopian Tube			52	5.8	52	2.4
Other Female Organs			4	0.4	4	0.2
Bladder	44	3.6	12	1.3	56	2.6
Kidney	35	2.9	20	2.2	55	2.6
Thyroid	3	0.2	7	0.8	10	0.5
Hodgkins	11	0.9	7	0.8	18	0.8
Non-Hodgkins Lymphoma	40	3.3	27	3.0	67	3.1
Multiple Myeloma	16	1.3	11	1.2	27	1.3
Leukemia: Acute Lymphatic	11	0.9	6	0.7	17	0.8
Chronic Lymphatic	7	0.6	2	0.2	9	0.4
Acute Myeloid	9	0.7	10	1.1	19	0.9
Chronic Myeloid	7	0.6	10	1.1	18	0.8
Other	8	0.7	5	0.6	13	0.6
Other Primary Sites	38	3.1	22	2.5	61	2.9
Primary Site Unknown	62	5.0	60	6.7	122	5.7
TOTAL	1228*	100.0	895*	99.9	2129*	99.9

* Difference due to missing sex

RELATIVE FREQUENCY OF CANCER DEATHS FOR 1976



RELATIVE FREQUENCY OF CANCER DEATHS FOR 1976



NEW REGISTRATIONS BY AGE AND SEX

1976

	0-34		35-44		45-54		55-64		65-74		75-84		85+		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Buccal Cavity and Pharynx	3	2	7	2	16	3	33	9	31	6	16	1	5	2	111	25
Oesophagus			2		5		4	2	7	1	6	3	2	1	26	7
Stomach			5	4	7	4	34	16	37	17	37	21	9	5	129	67
Small Intestine					1	2	4		1	1			1		7	3
Large Intestine	2	4	5	8	13	21	29	50	56	42	42	40	16	12	163	177
Rectum			6	2	16	9	28	27	40	25	25	15	12	7	127	85
Pancreas	1		3		10	5	19	14	21	12	14	15	7	5	75	51
Gallbladder			1		1	1	2	8	3	7	4	8	1	2	11	26
Larynx			1	1	6	1	15	2	15	1	6				43	5
Trachea, Bronchus, Lung	1	1	9	7	42	17	82	27	132	24	63	15	16	1	345	92
Brain, Nervous System	19	11	6	7	7	5	15	6	10	8	4	1	1		62	38
Bone, Connective Tissue	14	12	1	2	4	1	3		3	1	1	2	1	4	27	22
Skin	19	22	48	44	113	72	194	99	202	133	105	106	51	67	732	543
Melanoma	7	8	4	5	13	10	4	6	6	9	2	2		1	36	41
Breast		17		80		134	1	141	1	107	1	66		20	3	565
Prostate	1				7		51		143		107		55		364	
Testis	18		8		7		2		2						37	
Cervix Invasive		14		17		8		12		8		6		3		68
Cervix In-Situ		293		109		46		32		5		1				486
Uterus		3		4		33		87		32		19		4		182
Ovary, Fallopian Tube		6		7		27		26		24		12				102
Other Female Organs		1				3		4		4		6		1		19
Bladder	4	2	4	2	16	4	37	11	49	9	34	11	13	5	157	44
Kidney	2	1	6	4	5	4	21	14	24	9	12	5	4	2	74	39
Thyroid	4	16	4	6	3	5	1	10	1	4		3		3	13	47
Hodgkins	21	15	2	6	2		1	4	3	4		1		1	29	31
Non-Hodgkins Lymphoma	7	4	8	5	13	5	10	9	9	17	8	5	3	3	58	48
Multiple Myeloma			1		6	4	6	6	10	3	7	5	1	2	30	21
Leukemia: Acute Lymphatic	6	4	1		1		1		1						10	4
Chronic Lymphatic			1	1	3	1	9	4	8	4	5	2	3		29	12
Acute Myeloid	2	5	1	2	4		3	1	3	3	2	1		1	15	13
Chronic Myeloid		2	2	3	1		3	4	4	1	4	1			14	11
Other	3	3	1		1		1		2	1	3	2	1	1	12	7
Other Primary Sites	2		4	4	9	4	14	7	12	8	7	3	4	6	52	32
Primary Site Unknown	3	3	3	5	11	11	22	22	24	15	18	16	7	10	88	82

INCIDENCE RATES BY AGE AND SEX 1976

PER 100,000 POPULATION

	0-34		35-44		45-54		55-64		65-74		75-84		85+		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Buccal Cavity, Pharynx	0.5	0.4	6.7	2.0	17.3	3.4	49.5	13.3	73.8	14.1	88.4	4.7	94.3	30.3	12.4	2.9
Oesophagus			1.9		5.4		6.0	3.0	16.7	2.3	33.1	14.0	37.7	15.2	2.9	0.8
Stomach			4.8	4.1	7.6	4.5	51.1	23.6	88.1	39.9	204.4	98.1	169.8	75.8	14.5	7.7
Small Intestine					1.1	2.3	6.0		2.4	2.3			18.9		0.9	0.3
Large Intestine	0.4	0.7	4.8	8.2	14.1	23.6	43.5	73.9	133.3	98.6	232.0	186.9	301.9	181.8	18.2	20.3
Rectum			5.8	2.0	17.3	10.1	42.0	39.9	95.2	58.7	138.1	70.1	226.4	106.1	14.2	9.7
Pancreas	0.2		2.9		10.8	5.6	28.5	20.7	50.0	28.2	77.3	70.1	132.1	75.8	8.4	5.8
Gallbladder			1.0		1.1	3.0	11.8	7.1	16.4	22.1	37.4	18.9	30.3		1.2	3.0
Larynx			1.0	1.0	6.5	1.1	22.5	3.0	35.7	2.3	33.1				4.8	0.6
Trachea, Bronchus, Lung	0.2	0.2	8.7	7.2	45.4	19.1	123.1	39.9	314.3	56.3	348.1	70.1	301.9	15.2	38.5	10.5
Brain, Nervous System	3.3	2.0	5.8	7.2	7.6	5.6	22.5	8.9	23.8	18.8	22.1	4.7	18.9		6.9	4.4
Bone, Connective Tissue	2.5	2.2	1.0	2.0	4.3	1.1	4.5		7.1	2.3	5.5	9.3	18.9	60.6	3.0	2.5
Skin	3.3	4.0	46.2	45.1	122.2	81.1	291.3	146.2	480.9	312.2	580.1	495.3	962.3	1015.1	81.9	62.6
Melanoma	1.2	1.5	3.8	5.1	14.1	11.3	6.0	8.9	14.3	21.1	11.1	9.3		15.2	4.0	4.7
Breast		3.1		82.0		150.9	1.5	208.3	2.4	251.2	5.5	308.4		303.0	0.3	64.8
Prostate	0.2				7.6		76.6		340.5		591.1		1037.7		40.7	
Testis	3.2		7.7		7.6		3.0		4.8						4.1	
Cervix Invasive		2.6		17.4		9.0		17.7		18.8		28.0		45.5		7.8
Cervix In-Situ		53.5		111.7		51.8		47.3		11.7		4.7				55.7
Uterus		0.5		4.1		37.2		128.5		75.1		88.8		60.6		20.9
Ovary, Fallopian Tube		1.1		7.2		30.4		38.4		56.3		56.1				11.7
Other Female Organs		0.2				3.4		5.9		9.4		28.0		15.2		2.2
Bladder	0.7	0.4	3.8	2.0	17.3	4.5	55.6	16.2	116.7	21.1	187.8	51.4	245.3	75.8	17.5	5.0
Kidney	0.4	0.2	5.8	4.1	5.4	4.5	31.5	20.7	57.1	21.1	66.3	23.4	75.5	30.3	8.3	4.5
Thyroid	0.7	2.9	3.8	6.1	3.2	5.6	1.5	14.8	2.4	9.4		14.0		45.5	1.5	5.4
Hodgkins	3.7	2.7	1.9	6.1	2.2		1.5	5.9	7.1	9.4		4.7		15.2	3.2	3.6
Non-Hodgkins Lymphoma	1.2	0.7	7.7	5.1	14.1	5.6	15.0	13.3	21.4	39.9	44.2	23.4	56.6	45.5	6.5	5.5
Multiple Myeloma			1.0		6.5	4.5	9.0	8.9	23.8	7.0	38.7	23.4	18.9	30.3	3.3	2.4
Leukemia: Acute Lymphatic	1.1	0.7	1.0		1.1		1.5		2.4						1.1	0.5
Chronic Lymphatic			1.0	1.0	3.2	1.1	13.5	5.9	19.0	9.4	27.6	9.3	56.6		3.2	1.4
Acute Myeloid	0.4	0.9	1.0	2.0	4.3		4.5	1.5	7.1	7.0	11.1	4.7		15.2	1.7	1.5
Chronic Myeloid		0.4	1.9	3.1	1.1		4.5	5.9	9.5	2.3	22.1	4.7			1.6	1.3
Other	0.5	0.5	1.0		1.1		1.5		4.8	2.3	16.6	9.3	18.9	15.2	1.3	0.8
Other Primary Sites	0.4		3.8	4.1	9.7	4.5	21.0	10.3	28.6	18.8	38.7	14.0	75.5	90.9	5.8	3.7
Primary Site Unknown	0.5	0.5	2.9	5.1	1.9	12.4	33.0	32.5	57.1	35.2	99.4	74.8	132.1	151.5	9.8	9.4

DR. W. W. CROSS CANCER INSTITUTE



DR. W. W. CROSS CANCER INSTITUTE
ADMINISTRATION



DR. R. NEIL MacDONALD
Director



MR. G. J. TOURIGNY
Administrator



MRS. L. GATES
Director of Nursing

DIRECTOR'S REPORT

This report will not attempt to cover 1975 and 1976 activities of the Institute in an encyclopedic fashion but will select certain highlights of Institute life for comment.

	1975	1976	%
Day Care Unit	1,120	1,748	+55
OPD—Total	17,841	17,993	+ 1
—New	2,175	2,321	+ 6
—Non Reporting	1,716	1,651	—
—Grande Prairie	375	383	—
—Peace River	331	320	—
—Red Deer	452	668	+45

The chart listed above clearly illustrates the increased activity within the Cross Institute over the past two years. Particularly pleasing is the increased utilization of the Oncology Day Care Unit which has saved many patients the inconvenience of being admitted to an in-patient bed. At the same time, we have managed to reduce the average length of stay for in-patients.

BUDGET

Turning to the Budget, the funds required by the Institute may be considered under three headings: Equipment, Operating Budget, and New Program Budget.

Equipment

The Institute is very dependent upon sophisticated technological support; the total value of equipment is somewhere in excess of \$2,000,000. In order to maintain technical efficiency, we must replace between 5 and 10% of our equipment every year. The advances made in Radiation Oncology, Diagnostic Radiology and Nuclear Medicine require the purchase of very complex and expensive, new pieces of equipment periodically. In 1976, the Department of Nuclear Medicine obtained a tomographic gamma camera and at the same time, we managed to upgrade one of our older cameras. We reorganized our Diagnostic Radiology Suite in order to manage patients with greater efficiency and the acquisition of a designated chest x-ray unit has helped to alleviate patient waiting time. A proposal has been submitted to the Alberta Hospital Services Commission to rejuvenate the remainder of the equipment within the Diagnostic Suite. With the help and support of the Alberta Medical Association and the gynecologic community, we were successful in receiving approval for the purchase of a colposcope and the inauguration of an abnormal pap smear clinic in 1976. The Department of Radiation Oncology also requires a major upgrading of equipment. However, relief does appear to be in sight as we have been informed by Government that funds will become available in 1977 to purchase three new linear accelerators.

Operating Budget

While the years 1975 and 1976 were "hold the line"

years from a budgetary point of view, we were fortunate to be able to operate the Institute within the funding provided. However, our 1977 budget will only increase 7% over 1976 as compared with an 11% increase the previous year; therefore, a very careful watch on expenditures will be required in 1977 and every effort will be made to provide satisfactory patient care within the allocated budget.

New Program Budget

With regard to new programs, the Government has indicated that there will be no new programs in the health care area during 1976 and consequently, all of our requests were turned down. This is a critical situation for the Institute for if we do not continue to grow we may not plateau but, in fact, run the risk of sliding backwards. Therefore, a special plea was entertained by Government in mid-year and we are pleased that funds were subsequently provided from the Heritage Fund for four special projects:

1. Epidemiology or Cancer Surveillance (Cancer Detection and Prevention)
2. Radiobiology Laboratory
3. Estrogen Receptor Laboratory
4. Epidemiological Mapping

PERSONNEL

The Institute has grown considerably in recent years and its staff are now involved in a range of projects far in excess of those developed in 1969, the Institute's first year of operation. We are proud that the expansion of Institute activity has not been accompanied by a concomitant inflation in staff. Our full-time Institute staff still approximates the number present in 1969; there has only been a 4% increase over the seven-year period. We are grateful to our department directors and administrative managers who have succeeded in introducing a host of new programs while managing to increase the efficient utilization of existing staff. Fortunately, the Institute has had relatively little turnover of key full-time personnel in recent years. However, it was with great regret that we must note that our Chief of Surgery for four years and Chief of our Medical Advisory Committee, Dr. Alan McCarten, stepped down from his post. Dr. McCarten, the first Director of our Surgical Department, had worked very hard for the Institute at some cost to himself. The inter-hospital study group on breast, colon and lung cancer were created under his aegis and I hope he will be able to observe with pride the future accomplishments of these cooperative groups. We also lost one of our Radiation Oncologists, Dr. Ken McMillan, to Tasmania and his communications indicate that he is very happy in that sylvan environment. We also regret that our Director of the Department of Nursing for the past four years, Shirley Livingstone, left us in June in favor of married life. Shirley left us with a solid nursing organization and a staff which deserves a reputation for reliability and sensitivity to patient problems.

There have been several additions to the staff in the last three years. We were fortunate to attract Dr. Malcolm McPhee, a Urologist from the Royal Alexandra Hospital with a particular interest in oncology, to the position of Director of Surgery. Dr. McPhee did postgraduate training at Memorial Hospital/Sloan Kettering Institute in New York and his appointment will be of great benefit to the organization. Also in 1975, Dr. Andrew Belch joined the Institute in the Department of Medicine and Dr. Alan Lees in Radiation Oncology. Dr. Belch joined us from the University of Toronto, oncology/hematology program while Dr. Lees moved to Alberta from Britain. The appointment of Dr. Gordon Bain as Director of the Department of Laboratory Medicine also took place in late 1975. Dr. Bain, assisted by pathologists throughout the City, has developed disease oriented pathology panels to work with the other hospitals' clinical groups as well as looking after the immediate pathology needs of the Institute. This new program is described in more detail in the departmental reports. Additions of senior staff in 1976 include Dr. A. H. G. Paterson who served as a Fellow in the Institute and joined the full-time staff in July. Dr. Paterson has been assigned the responsibility for the coordination of our various breast cancer programs. Dr. Tony Noujaim, who has been a productive collaborator with Dr. Brian Lentle in past years, joined the staff as a senior research associate in Nuclear Medicine; an appointment which I am sure will greatly enhance the research carried out by these very productive people.

RESEARCH AND EDUCATION

Turning to the research and educational aspects of institute life, one of the major developments was the inauguration of a Division of Oncology within the University of Alberta in January of 1976. In its simplest terms, the Division exists to enhance research and educational programs within the University of Alberta. Aside from day-to-day activities, the Division is currently involved in the following long-range projects:

1. Review of Undergraduate Program
2. Supervision of Oncology Program in Undergraduate Education
3. Preparation of a Newsletter
4. Research Seminars
5. Research Resume
6. Organization of a Faculty Lecture Series

I mention the Division of Oncology as Cross Institute staff are intimately concerned with cancer research and education within the University of Alberta. When the Institute was first conceived, concern existed that it either would be swallowed up completely by the University of Alberta Hospital or, conversely, that it would remain an isolated service unit which would negatively influence development of excellent research and education in cancer by the University.

We believe that the Institute has succeeded in maintaining its autonomy, its direct relationship to Govern-

ment, and to physicians in the community, while at the same time establishing an excellent liaison with colleagues from the various University departments. The benefits that may be gained through this type of interaction are demonstrated when we look at specific educational and research projects.

In the educational field the Institute is responsible for a full training program in radiation and medical oncology. A family practice residency program was established during 1976. For some time we have been seeking an appropriate way for a highly specialized institute to interrelate with family practitioner training. We hope that the four-week family practice rotation, which stresses instruction on diagnostic techniques in the Out-Patient Department, will help a great deal in establishing a first-rate communication with our family practice colleagues.

Our out-patient clinics are also populated from time to time by a variety of surgical, gynecologic and pediatric residents. We continue to believe that the wealth of clinical material within the Institute is not yet fully utilized and hopefully we will see a more structured program in the surgical disciplines emerge during the forthcoming year or two.

With regard to undergraduate students, at the present time, between one-quarter and one-third of the Phase III medical class rotates to the Cross Institute for a four-week in-depth experience in medical oncology. In addition, many other students participate in electives which involve the Cross Institute. For example, in excess of twenty students per year now receive some exposure to radiation oncology through the elective program.

RESEARCH

A consistent objective of the Institute for the last five or six years has been the establishment of excellent research programs. This objective is based on our belief that we cannot serve physicians in the community at large in proper fashion unless our service program is based on a firm research arm. Only in this way will we be able to assure the doctors we serve that advances can be made available for their patients at the earliest possible moment.

In discussions with the physicians around the City, it is apparent that we have not done an adequate job in disseminating information on the rich panorama of clinical and basic research on cancer carried out within the Institute. Within this report is a summary of publications by staff members and an enlargement upon some of the work is contained within departmental reports. I am very pleased to report that there has been a dramatic increase in publications and presentations emanating from the Institute. The table below illustrates this point:

	1975	1976
Papers	15	22
Presentations	27	55

Earlier I mentioned the productive liaison which exists between people primarily based in the Institute and

individuals in other parts of our University. An example of this liaison is demonstrated through the fact that 46% of the papers and presentations made during 1976 involved joint authorship between Cross Institute personnel and people based outside the Institute.

1977

What do we look forward to in 1977? First, we look forward to the addition of several young colleagues who will assist us in our programs. We anticipate that Dr. Robert Turner will be joining our Department of Medicine in July of 1977. Dr. Turner is a westerner who attended McGill University and subsequently trained in hematology and oncology at the University of Pittsburgh. Under Dr. McPherson, we have developed an interest in bone marrow and white cell function. Dr. Turner is well trained in this area and will be carrying out research on bone marrow activity with specific regard to the leukemias, in addition to accepting a clinical responsibility.

Dr. John Pedersen, a graduate of our radiation oncology program, has received a McLaughlin Fellowship through the University enabling him to study abroad for a year. He will then return to join our Department of Radiation Oncology.

Unfortunately, our most senior medical member, Dr. Gutter, will retire during 1977. A Search and Selection Committee has been struck to recruit a replacement for Dr. Gutter upon his departure.

As I indicated above, we look forward to the establishment of new programs in radiobiology and the development of the abnormal pap smear clinic. Dr. Malcolm McPhee has been working vigorously to revitalize the inter-hospital study groups concerned with cancer of the breast, lung and colon. We must establish clinical protocols on lung carcinoma and breast carcinoma during the forthcoming year. Dr. McPherson and Dr. Khaliq, with the support of surgical colleagues, have already developed excellent clinical protocols for carcinoma of the colon and malignant melanoma, while Dr. Leigh Brown and Dr. George Glazebrook, working together with Dr. Paterson, have started a full range of clinical protocols covering the gynecological malignancies. A number of these protocols are carried out on a national basis through the National Cancer Institute.

During 1976, Dr. McPhee was instrumental in the establishment of a western urological group which has the objective of creating clinical protocols which may be utilized by urologists and radiation oncologists throughout our sister western provinces.

Major funds for renovation of the Institute or for new construction are not anticipated for some years to come. Obviously, the immediate interest of Government is in the establishment of a first-rate cancer centre in the southern part of the Province. However, with the continued expansion of the Institute activities at the Cross Cancer Institute in relationship to activities within the new Health Sciences Centre being built across campus, we have established a series of long-range planning committees

during 1976. These committees, involving all full-time Institute staff and a large number of part-time staff, are charged with providing advice on the future development of the Institute and the likely need for new construction and facilities. Their work has just commenced and at the time of this report next year, we should be able to present a blueprint for major long-term development of our Institute.

In conclusion, I once again have enjoyed the task of preparing an Annual Report. Emersed, as we all are, in day-to-day affairs, we sometimes find it difficult to stand back and note the progress which is being made. However, when the events of a year are summarized, the productivity and vigorous spirit existing within the Cross Institute clearly emerges.

I wish to express particular appreciation to Mr. Gil Tourigny, our Administrator, who has managed the affairs of the Institute with tact, enthusiasm, and success. I am also particularly grateful to my "two direct bosses", Dr. Walter MacKenzie and Dean Cameron, for their continued support.

DEPARTMENT OF MEDICINE

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(Professor, Faculty of Medicine,
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A. H. G. PATERSON, M.B., B.S., M.R.C.P. (London)
Physician

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A. SHAW, Ph.D.
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T. HORAN, B.S.
Research Assistant

RESIDENTS AND FELLOWS

- B. BRAATEN, Ph.D.
(Police Benevolent Society Fellow)
- J. COATES, Ph.D.
(M.R.C. Postdoctoral Fellow)
- G. FULLER, Ph.D.
(M.R.C. Postdoctoral Fellow)
- L. YUNG, Ph.D.
(M.R.C. Postdoctoral Fellow)
- C. W. HUANG, Ph.D.
(N.C.I. Postdoctoral Fellow)
- A.H.G. PATERSON, M.B., M.F.R.C.P. (London)
(Medical Oncology Fellow)
- S. B. KATAKKAR, M.D.
(Medical Oncology Fellow)
- G. BONE, M.B., B.S., F.R.C.S.
(Gadeski Fellow)
- D. ENGLISH, Ph.D.
(Mervin Laskin Fellow)
- H. HSIUNG, Ph.D.
(M.S. Postdoctoral Fellow)
- M. MOKWE, M.D.
(Resident)
- M. NUTTING, M.B., B.S., M.R.C.P.
(Resident)
- P. VENNER, M.D.
(Resident)
- G. McMURRAY, M.D., F.R.C.S.(C), F.A.C.S.
(Resident)



DR. T. A. McPHERSON

The period 1975 and 1976 was one of significant expansion for the Department of Medicine. Major growth occurred in our undergraduate and graduate medical education program, an active research program in experimental hematology was started, there was further growth of our clinical research programs, particularly

those involving the McEachern Cancer Research Laboratory, and a Faculty of Medicine Division of Oncology was started.

During 1975 and 1976, four residents participated in the Department of Medicine training program in Medical Oncology at the Cross Institute. In addition, 12 residents in General Medicine rotated at two-month intervals through the training program in medical oncology, and three clinical research fellows, two supported by the Alberta Division of the Canadian Cancer Society and one supported by the Gadeski Fellowship, received further training in medical oncology. We believe it to be of considerable importance that one of these research fellows, Dr. S. Katakhar, has recently been given an appointment with the cancer unit in Regina and another, Dr. A. H. G. Paterson, has come on to the active staff of the Department of Medicine of the Cross Institute, while the other, Dr. G. Bone, plans to continue his training in Surgical Oncology. Another measure of the success of our residency program is the continuation of three of our four residents in medical oncology training programs in medical oncology/hematology, with a view to practicing in this field in the future, and the success of the other in obtaining his Fellowship in General Medicine. Our program in basic and applied research has included the postdoctoral training of six fellows, supported by the Mervin Laskin Fellowship program (Dr. D. English), the Medical Research Council of Canada (Drs. J. Coates and G. Fuller), the National Cancer Institute of Canada (Dr. C. W. Huang), the Medical Science Society of Canada (Dr. H. Hsiung), and the Police Benevolent Society of Edmonton (Dr. B. Braaten). Finally, we continue to take an active role in the training of the final year medical students as part of their general medicine clinical experience, and to provide lectures, symposia and seminars as part of the Phase I, II, and III programs of the Faculty of Medicine.

An, as yet, informal Division of Experimental Hematology is developing within the Department of Medicine. The impetus for this development comes primarily from the efforts of Drs. D. English, A. H. G. Paterson, G. Bone, B. Braaten, and Mr. Tim Horan, in conjunction with Drs. MacDonald, Noujaim and Lentle. The activities of this group are directed at better understanding the mechanisms involved in granulocyte and monocyte phagocytosis and chemotaxis, with a view to using these function assays for the monitoring of granulocyte and monocyte defects and change in function in cancer patients. These studies have recently been supported by a new operating grant from the Medical Research Council of Canada. In addition, a research project is developing to study cryopreservation of canine bone marrow, in conjunction with assays to determine the viability and retained function of canine marrow before, and after, cryopreservation, using a colony forming unit assay. The capacity of cryopreserved, autologous canine bone marrow to reconstitute the hematopoietic system of lethally irradiated dogs is also being studied, with the hope that such methodology might be used to restore bone marrow function in patients with cancer treated "for cure" by intensive chemotherapy or radiation therapy.

The applied and clinical research programs of the Department of Medicine also became more diverse and extensive during 1975 and 1976. Dr. Belch is conducting trials in adult acute leukemia in conjunction with Drs. Akabutu and Brox, and is also involved in clinical trials for patients with lung cancer and myeloma. The latter clinical trial includes a study, in conjunction with Dr. J. Hill of the Department of Clinical Pathology of the University of Alberta Hospital, directed at determining the catabolic effect of prednisone on monoclonal serum proteins. Dr. Khaliq, in conjunction with Dr. A. LePage of the McEachern Cancer Research Laboratory, is responsible for two Phase I studies and a Phase II study, using compounds provided by the McEachern Cancer Research Laboratory, in patients with cancer. In addition, he and Dr. McGowan, from Radiation Oncology, are responsible for directing a program for the treatment of patients with Hodgkin's disease sponsored by the National Cancer Institute of Canada. Dr. Khaliq is also directing a Phase III study into the use of combination chemotherapy for the treatment of metastatic cancer of the gastrointestinal tract. Dr. MacDonald, in addition to his heavy administrative responsibilities, acts as an advisor to the experimental hematology program and is participating in different clinical research protocols for the treatment of carcinoma of the testicle, bladder and prostate, as well as a protocol for the treatment of chronic myelogenous leukemia. Dr. Paterson, since his arrival in 1975, has developed and directed, in conjunction with Dr. McPherson, clinical research protocols for the treatment of patients with malignant melanoma. In addition, Dr. Paterson has capably fulfilled Departmental responsibilities relating to the diagnosis and treatment of breast cancer. This has been an enormous task, but Dr. Paterson, in association with the interdisciplinary breast study group, has developed clinical research protocols for the treatment of patients with metastatic breast cancer and has cooperated in the development of protocols for adjuvant treatment of breast cancer. Dr. McPherson continues to direct the clinical research program in malignant melanoma, and has developed, in conjunction with Drs. Bone and McMurray, a further adjuvant treatment program for patients with gastric and colorectal cancer treated by surgery "for cure". Aside from the direct involvement in clinical research programs of full-time members of the active staff of the Department of Medicine, all members have actively collaborated with part-time members of the active staff of the Department in other projects. In particular, the Division of Infectious Disease of the Department of Medicine of the University of Alberta has taken an increasingly heavy responsibility with respect to the diagnosis and care of patients with infection in the Institute and has developed several programs which will involve studies on patients with cancer and infection. Also, the Division of Pulmonary Medicine has become increasingly involved with the lung cancer study group and is actively participating in several clinical research programs in the Institute. As usual, many other members of the Department of Medicine are fulfilling important roles with respect to the clinical care and conduct of clinical research in the Department of Medicine. These include, in particular, Drs. A. Edwards, L.

Takats and Dr. D. Tusz, who are heavily involved in the breast study program.

The applied research programs in the Department have also developed significantly during 1975 and 1976. Dr. M. Koch has been appointed coordinator of a CEA project funded by a grant from the Alberta Hospital Services Commission. From its inception in 1972, this program has grown to the point that we have now done in excess of 10,000 assays on samples from patients in Alberta, and to a lesser extent, Saskatchewan. Since 1975, the Clinical Pathology Department of the Foothills Hospital in Calgary has been collaborating with us in the program and they have been performing CEA assays on all patients referred from Southern Alberta. Clinical information on the patients from Southern Alberta is made available to the central information group at the Cross Institute responsible for the CEA program. Thus, it has been possible to determine certain clear-cut indications for performing CEA assays in a cancer hospital setting. The number of CEA assays done has increased from 441 in 1972 and 1973 to 2,985 in Edmonton and 1,360 in Calgary in 1976. In addition, 580 assays on patients from Saskatchewan were done in Edmonton in 1976. The CEA project has also been responsible for six presentations at national meetings and three publications during 1975 and 1976. The individuals most heavily involved with the ongoing success of this program have been Drs. Koch and Coates. In addition, however, many individuals have been collaborators, including Drs. Bone, Fuller, Morrish and Huang, and Ms. McCoy, Schuller, deBoer, Robinson, Jackson and Sunderland. The ongoing research activities of this group include the following: (a) the clinical usefulness of the CEA assay in patients with cancer; (b) the development of a more simplified and less expensive, direct technique using commercially available reagents; and (c) the introduction of an autoradiographic technique to detect the presence, and quality, of CEA in biopsy tissue, or tissue removed at operation as a possible marker of "pre-malignancy".

An applied research program in tumor immunology, involving primarily Drs. Shaw and McPherson, and Mr. R. Barnett, Ms. Melnychuk and Ms. Coates, is also progressing well. The projects involved are directed at: (a) confirming, and extending, the macrophage electrophoretic mobility (MEM) test, previously suggested by several investigators as a possible diagnostic test for cancer in general; (b) developing the structuredness of the cytoplasmic matrix (SCM) assay which purports, also, to be a generally useful technique for diagnosing cancer; and (c) assessing the antibody-dependent cell-mediated cytotoxicity (ADCC) assay for its value in monitoring patients with malignancy. The first two of these projects have been supported by the National Cancer Institute of Canada and a grant to the National Cancer Institute has been submitted for the third. In general, the results from the MEM test have been inconsistent and difficult to interpret. Nevertheless, it was possible to show that the positive response of cancer patients' lymphocytes to tumor basic protein was not simply a function of charge on basic proteins, insofar as similar responses were not seen when other basic proteins were used in the assay. The

SCM test has been standardized by Mr. Barnett, and he is now able to obtain highly reproducible and consistent results using this technique. Further studies will be necessary to determine whether the technique can be used, as claimed, for the diagnosis of cancer. The ADCMC assay has proven to be highly consistent and reproducible. The prognostic and diagnostic significance of the assay is being evaluated using normal tissue culture cell lines, as well as melanoma and colorectal tumor cell lines.

The development of a Faculty Division of Oncology, under the directorship of Dr. Neil MacDonald, and the beginning of a Department of Medicine Division of Medical Oncology under Dr. McPherson are other important changes which have taken place and involve, in a major way, members of the Department of Medicine of the Cross Institute. In addition, Dr. McPherson has been appointed Acting Head of the Division of Medical Oncology of the University of Alberta Hospital. These developments have resulted in considerable unity with respect to aims for clinical and applied research in Oncology and, in particular, Medical Oncology. The coordinating effect of having a Faculty-wide Division of Oncology, and of having the same individual responsible for the overall direction of Medical Oncology at the University, University Hospital, and Cross Institute, has been particularly apparent in undergraduate and graduate training, the development of the clinical research programs, and the extension of interdepartmental cooperation between University departments and departments of the Cross Institute.

Experimental Hematology

Dr. D. English, in association with colleagues in Chicago, has been instrumental in developing a technique for the localization of inflammatory lesions using radiolabelled white cells in dogs. These observations were confirmed, and extended, by our group at the Cross Institute in man. More recently, techniques have been developed for the quantitation of leukocyte chemiluminescence following phagocytosis, and for chemotaxis of granulocytes and monocytes using radioassay techniques. Additionally, cryopreservation of bone marrow for autologous, hematopoietic reconstitution in lethally irradiated dogs is being developed. The cryopreserved marrow is monitored after thawing using conventional hematological methods as well as colony-forming unit assays (CFUa) developed, for dog marrow, by Dr. Braaten.

To date, successful methods for granulocyte and monocyte chemotaxis by radioassay have been developed and chemiluminescence has been shown to be a useful method for quantitating phagocytosis. Also, autologous bone marrow cells, following cryopreservation, were capable of restoring bone marrow function of lethally irradiated dogs, as compared to lethally irradiated, non-reconstituted dogs.

Carcinoembryonic Antigen (CEA)

The CEA program has concentrated primarily on the development of innovative techniques for the use of

radioiodinated anti-CEA as a marker of CEA antigen in colorectal tumor tissue, and the development of a simplified, direct radioimmunoassay for CEA in plasma. In addition, the usefulness of CEA determinations in patients with cancer has been carefully studied using the conventional, commercially available, assay.

Results have indicated that radioiodinated anti-CEA may be useful in localizing CEA-producing tumors and metastasis in man. Studies using a direct radioimmunoassay for CEA have shown this technique to be relatively simple, less expensive, and as reproducible as the conventional assay. In addition, the direct assay appeared to detect an increased number of patients with known colorectal cancer as compared to the commercially available assay, suggesting that it might be more suitable for routine use in cancer patients than the presently used assay. Finally, results from CEA assays on many hundreds of patients attending the gastrointestinal tract interdisciplinary clinic have shown CEA levels to be helpful preoperatively in predicting the prognosis of patients with cancer of the pancreas or colon, as well as post-operatively in predicting a poor prognosis in patients with known cancer. Indeed, several patients have now had "second-look" operations on the strength of a persistently elevated, or rising CEA, and have been found to have resectable recurrent, or metastatic tumor, with a post-operative fall in CEA, and an apparent disease-free interval for up to one year postoperatively.

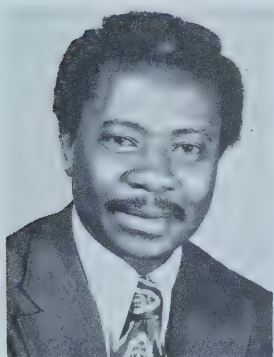
Tumor Immunology

The macrophage electrophoretic method (MEM) for the detection of lymphocytes putatively sensitized to a tumor basic protein has been studied in patients with and without cancer. To date, we have shown that the technique can be consistent in certain hands, but inconsistent and subject to innumerable vagaries in the hands of others. For this reason, we have been unsuccessful in developing the technique to a level where it can be used as a practical method for separating patients with and without cancer.

Another technique which some have claimed might be useful as a "universal cancer diagnostic test" is the structuredness of the cytoplasmic matrix (SCM) assay. This technique requires highly sophisticated, complex, and expensive equipment. Fortunately, the necessary equipment was available to us through the courtesy of Dr. J. Charnock, Chairman, Department of Pharmacology, University of Alberta. Mr. R. Barnett, while pursuing an M.Sc. degree under Drs. S. Usiskin and J. Scrimger of the Department of Physics of the Cross Institute, has attempted to reproduce the results of others using this assay. He has been successful in standardizing the assay and can now obtain highly consistent results using isolated lymphocytes from normal donors in the presence and absence of phytohaemagglutinin. To date, however, several technical complexities have emerged, and it is only now becoming possible to be confident of the technique to the extent that studies using cancer patient lymphocytes, and normal patient lymphocytes, can be compared in a meaningful fashion.

The antibody-dependent cell-mediated cytotoxicity (ADCC) assay was developed and has proven to be a sensitive indicator of antibodies in serum of patients with affinity for tumor cell line antigens. Adaptation of the technique to microtiter plates has enabled the performance of many more assays, thus permitting evaluation of antibody titers in serum from many patients. To date, multiparous melanoma patients have been found to possess both an elevated titer, and elevated frequency, of antibody to allogenic membrane antigens. The prognostic, and diagnostic, significance of the assay is being evaluated using these cell lines, as well as using lymphoblastoid and colonic carcinoma cell lines.

DIVISION OF PEDIATRICS



DR. J. J. AKABUTU

Thirty-nine new cases of malignant diseases of children were registered with this program during the calendar year of 1976. The breakdown by disease is as follows:

Acute Lymphoblastic Leukemia	8	Acute Myelogenous Leukemia	2
Rhabdomyosarcoma	6	Sacroccygeal Teratoma	1
Ewing's Sarcoma	2	Wilm's Tumour	2
Chronic Myelogenous Leukemia	1	Hepatoblastoma	1
Neuroblastoma	4	Eosinophilic Granuloma	1
Malignant Lymphoma	4	Fetal Mesodermal Hamartoma	1
Osteogenic Sarcoma	3	Orchioblastoma	1
Hodgkin's Disease	2		

Nearly all of these patients were admitted to the pediatric services of the University of Alberta Hospital. This Hospital has now assumed a major responsibility as the referral centre for children with oncologic diseases in Northern Alberta. The proportion of pediatric beds occupied by this group of patients has risen steadily since 1972. At the present time at least ten percent of these beds are used for oncology on an ongoing basis.

The care at the University of Alberta Hospital is intensive. Frequently a one to one nursing situation is required as the vast majority of the hospitalized patients are critically ill. Intensive combination chemotherapy is administered

efficiently and without fuss. It is very gratifying to note that the nursing stations have adjusted readily to this activity. However, the pediatric wards have also shown the strain of assuming the role of a referral centre for this program. Some adjustments in personnel have been made and hopefully further changes will be undertaken to enable this program to continue unimpeded.

Special praise and appreciation must be extended to the nursing staff of Stations 38, 37, 36 and 33. The success of the University Hospital program has been largely due to their devotion and expertise. In addition, the pediatric resident staff can also be singled out for their enthusiasm in looking after these patients both as a service and learning experience.

The laboratory services of the University of Alberta Hospital have cooperated superiorly in supplying expert service to this patient population. The special requests have been eagerly attended to. The blood bank of the University Hospital has to be singled out for praise for the provision of an excellent service at all times.

Few patients are admitted to the Cross Cancer Institute for diagnostic evaluation and treatment. The pediatric service at this Institute continues to be intentionally restricted mainly to an out-patient program. Those few patients who can be expeditiously managed at the Cross Institute continue to be hospitalized there.

Out-Patient Service

Two morning clinics per week are now held for comprehensive care of pediatric patients. The clinics are coordinated by a nurse specialist and are attended by a radiation oncologist, pediatric oncology resident, physicians from pediatrics, resident physician from radiation oncology, nurse specialist and a counselling group. A volunteer also organizes recreational activities for the children. This latter activity is extremely popular with this patient group.

The combined monthly visits through July, 1976 were 80 patients. This number represents a fourfold increment since 1972. It is envisaged that this number will increase with the improvements in treatment methods that are being applied. The multidisciplinary team lacks a surgeon. At the present time the need for a surgical presence at the clinics cannot be justified. Consultation between radiation oncology and pediatrics are automatic under the clinic setting. This expedites decision making and treatment.

The clinics are truly comprehensive. All investigative procedures such as blood smear interpretation, bone marrow examination; lumbar puncture and radiologic investigations are undertaken on an out-patient basis. Only very young children are admitted to the hospital for investigation for purely technical reasons.

Results—An in-depth analysis of the effects of this program has not been carried out. A few general conclusions are pertinent.

Acute Lymphoblastic Leukemia—The introduction of total therapy in acute lymphoblastic leukemia of children has resulted in: (a) total absence of central nervous system

involvement during the first year post induction, (b) reduction in total morbidity time to this patient population and (c) the apparent increases in the number of children entering prolonged remission.

Wilm's Tumour—Although our program did not participate in the National Wilm's Tumour study, the recommendations were followed. The results in Northern Alberta thus far reflect the current state of affairs with this disease of children. About 75% of children with this disease of *all* stages are responding well and entering prolonged periods with no evidence of disease.

Osteogenic Sarcoma—The National Cancer Institute Protocol for this disease is being followed for all patients in Northern Alberta. No results are available.

Neuroblastoma—With the exception of infants with neuroblastoma, the results following therapy for all stages continues to be very poor. There have been no new leads in this disease. Developments at various United States Institutions, e.g. St. Jude, Los Angeles Children's, and Philadelphia Children's have not produced any changes in the overall mortality figures.

Malignant Lymphoma—This disease continues to be uniformly fatal in this age group. The experience here means that the current protocols need modification.

Ewing's Sarcoma—The earlier enthusiasm of reversal of prognosis in this tumour has been tempered. Like most centres, the true response rate more closely approximates 50% of the patient population. The results in Northern Alberta are in this range.

Miscellaneous Tumors—These include rhabdomyosarcoma, hepatoblastoma and malignant schwannomas. The numbers are too few for comment.

The overall impression is that this program is indeed producing better results than were obtained in Northern Alberta prior to 1972.

Research

The projects in progress are as follows:

Synchronization and recruitment in Acute Myelogenous Leukemia—This is an attempt at manipulation of the leukemic cell to cycle to therapeutic advantage. The leukemia service of the Department of Medicine also utilizes the protocol devised under the auspices of this research for the induction of adults with acute myelogenous leukemia. Results have not been analyzed as enough patients have not been studied.

Polyamines as Biologic Markers of Leukemia Cell Activity—This is a new venture in the program. Polyamines are now known to bear some relationship to the kinetic behaviour of the cell. The studies that are currently in progress will attempt to correlate cell cycle events with polyamine levels in leukemic cell populations.

Bone Marrow Culture in SemiSolid Agar—Human marrows, especially those from patients with neutropenia, are being studied as a means to the understanding of the proliferative activity of the com-

mitted stem cell. This area continues to be developed.

Investigations into the Chemotaxis of Neutrophils in Cystic Fibrosis—This project is an offshoot of developmental work that has been done in the area of neutrophil motility. Patients with cystic fibrosis under certain stimuli seem to have increased spontaneous chemotaxis of their neutrophils. The nature of the stimulus forms the base of this investigation. The neutrophil will also be studied from a substructural point of view following the induction of spontaneous chemotaxis in cystic fibrosis neutrophils.

Consultative Service

Consultative service in pediatric oncology is provided through the auspices of this program to the Northern Alberta region. All hospitals in this area are visited upon request. Where intensive care is necessary transfer of the patient to the University Hospital pediatric wards has been advised and readily accepted. The relationship between the program and the practicing pediatric community is an excellent one. The program enjoys the confidence and respect of the pediatric community.

The Parents' Group

Parents of children with malignant diseases face the task of not only helping the ill child but also keeping the entire family together and functioning during a period of great stress. Parents become experts in many aspects of the care of sick children and those who are able to share their feelings and experience with other parents usually tolerate the situation better than those who are isolated.

A parents' group of the Northern Alberta pediatric oncology program was formed in January, 1976. Its purposes are to share information, to provide an opportunity for parents to share a common experience, and to provide parents with additional information from a variety of professionals and sources.

Meetings are held monthly in the doctors' lounge of the Cross Cancer Institute. Those participating are primarily from Edmonton. The attendance fluctuates according to the topics presented and the individual needs of the parents. The purpose of the program is explained to new parents but their participation is voluntary.

It has been found through experience that structured meetings, i.e. those with a guest speaker and a specific topic, are more successful than meetings held for general discussion only. Therefore, this format has been adopted.

An effort has been made to encourage the parents to assume the entire responsibility for the program. There has been a gradual move in this direction and hopefully in the near future the professional staff will be used for resource purposes only.

The Role of the Nurse Specialist

The Nurse Practitioner as defined by the Boudreau Report is "a nurse in an expanded role oriented to the provision of primary health care as a member of a team of health

professionals relating with families on a long-term basis". The term nurse clinician refers to a nurse with advanced competence who is primarily responsible for nursing practice. The position of the pediatric oncology nurse specialist is a combination of these two roles; that is, the responsibilities include provision of primary health care as well as teaching and coordination.

The role of the nurse specialist in the pediatric oncology program is still evolving and will probably continue to do so as the program expands. Initially it was necessary to educate both the patients and their families as well as nursing and medical staff as to the nature of the position. It was important to emphasize that the nurse in an expanded role is not simply a physician's assistant but rather an independent professional who, in association with the physician, can improve the quality of care by contributing her own knowledge and expertise. For the most part, I think this role has now been recognized and accepted by both parents and professional staff.

The most difficult aspect of the position is the problem created by the division of in-patient and out-patient facilities. Not only is this time consuming but it decreases the accessibility of the nurse specialist to pediatric nursing staff at times when her experience regarding certain patients might be of assistance.

Although the position will have to continually be adapted to meet the changing needs of the program, there are three constant areas of responsibility:

- Provision of comprehensive patient care in association with the physician,
- Coordination of the pediatric clinic, and
- Education of patients and their families regarding disease process, medication, etc., and medical and nursing staff regarding care of the child with malignant disease.

Future Projections

The program requires two full-time pediatric oncologists. Its quality will be enhanced significantly. At the present time, there is a weak link which is in the area of clinical investigation. This is as a result of time restriction due to heavy patient responsibility. It is hoped that this can be remedied with the new staff acquisition. This position has now been approved and will be filled as soon as possible.

At the present time, the program is scattered with units at the University of Alberta, the University of Alberta Hospital and the W. W. Cross Cancer Institute. This has led to very serious time compromises. It is hoped that all aspects of this program can, in the future, be unified under one roof. It should be noted that the out-patient clinics are situated in the best facility for the purposes at this time.

It is hoped that an educational program can be started, totally devoted to the care of the child with oncologic illness. At the present time, the programs in Canada are not producing individuals capable of more than clinical expertise in this area.

More extensive participation in national and international studies is planned. It is hoped that at least some of the national studies will originate from the Northern Alberta program.

Conclusion

It is safe to say that the Northern Alberta pediatric program is capable of becoming an excellent program within a short period. It has a good clinical base but lacks the necessary investigational component which is the hallmark of any good unit. At the present time, it serves the population well but will be severely compromised by lack of growth. The time for further growth is now. It is gratifying to know that indeed this is scheduled to occur.

DEPARTMENT OF RADIATION ONCOLOGY

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J. E. PEDERSEN, B.Sc., M.D., F.R.C.P.(C)
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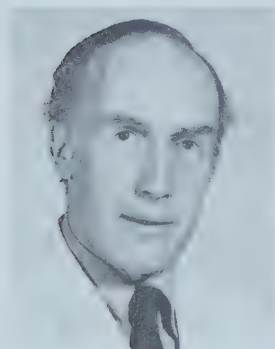
A. ENNS, M.D., C.A.C.R.
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B. A. SECTER, M.D.
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until June 30, 1976)

H. R. WANNAS, M.D., F.R.C.S.
(Clinical Assistant and Ward Physician
effective July 1, 1976)



DR. J. G. PEARSON

About one-third of the patients on the wards of the Dr. W. W. Cross Cancer Institute at any one time are under the care of radiation oncologists for assessment of the nature and extent of their disease, for treatment by irradiation, or for the management of such later complications as require in-patient care. Of patients treated by irradiation in 1976, 56% attended daily on an out-patient basis, 26% were irradiated whilst in-patients in the Cross Institute and 18% were transported daily from other hospitals. Amongst the out-patients is to be found the greater part of the most critical load, that is a majority of the patients for whom cure appears possible—patients for whom there is a reasonable expectation of survival for five or more years following irradiation. A typical radiotherapy out-patient attends the department five days a week for between two and six weeks.

From January to December 1976, 44,088 radiotherapy "set-ups" were carried out in the course of 20,394 separate treatment sessions for a total of 1,987 complete courses of radiotherapy. During the six years up to December 1976, the number of complete courses of radiotherapy per year has increased by 67%, during the last five years the increase has been 50%.

Obviously, this growth creates staffing problems and the vigorous measures taken during the last six years to combat this problem will not bear fruit for yet another year. In the long run, if we can increase the staff establishment sufficiently to meet the increased work load, if we can recruit and train adequately in quality and quantity to fill the new staff positions and if we can further increase the facilities to match the worldwide trend towards better standards of radiotherapy, we will succeed in developing excellent radiotherapy in Edmonton. The plans to achieve all these objectives are now well advanced and there are very real prospects of surmounting the current difficulties within the next few years.

The average patient undergoing a course of radiotherapy has required two hours work by a radiation oncologist in the course of treatment planning and implementation, irrespective of the time the radiation oncologist spends on initial clinical work-up, reviews during treatment and post treatment follow-up. Seventeen mark-up, simulator and treatment review clinics are conducted in the Radiation Oncology Department each week.

In addition, in the general out-patient department of the Cross Institute, each week the radiation oncology staff conduct eight new patient clinics, 16 follow-up clinics and participate in 16 interdisciplinary clinics conducted with surgical and medical colleagues.

The school for the training of radiation oncology technicians has been expanded to include the teaching of anatomy, physiology, pathology, patient care, radiobiology and protection, subjects formerly taught at the Northern Alberta Institute of Technology.

Radiation oncologists are also actively engaged in cancer educational projects for the practicing physician, nursing groups and the laity, where necessary, by means of appropriate contributions through the media.

All members of the Department have maintained an active and growing research interest. The proposed expansion of our radiobiology program has now received major budgetary support from the Alberta Heritage Trust Fund for a five-year research program. We are now actively engaged in recruiting for and equipping the project.

A radiotherapy consultation service is provided for all the hospitals in Edmonton and peripheral clinics are conducted in conjunction with surgical colleagues in Grande Prairie and Peace River. A radiation oncologist participates in the Red Deer Clinic in collaboration with the medical staff of the Red Deer General Hospital and an internist from the Department of Medicine of the Cross Institute.

The radiation oncology staff have contributed to all phases of the undergraduate medical teaching program. This year each of the 25 students spent two days in the division in the course of their Phase III radiology elective. In collaboration with other disciplines, radiation oncologists participate in teaching in the Phase II program. We have also seen an increase in the teaching commit-

ment of radiation oncologists in the medical undergraduate curriculum.

There has been one recruit to the radiation oncology medical staff, namely Dr. Alan W. Lees from Middlesex Hospital, London via the Division of Radiation Oncology in San Francisco and Leeds University.

The radiation oncology residency program commenced in 1973. Drs. A. Enns, A. Nett, J. Pedersen, E. Higgins and A. Starreveld are now in the final stages of training. Dr. Pedersen gained an R. S. McLaughlin Fellowship which will enable him to work at the Royal Marsden Hospital at Sutton, Surrey, England for the coming year. the coming year.

Symposium

The Department of Radiation Oncology organized a symposium on Carcinoma of the Rectum. Guest lecturers were Dr. W. Rider, Director of Radiation Oncology at the Princess Margaret Hospital, Toronto, Ontario and Dr. G. A. Higgins, Chief Surgical Services and Professor of Surgery, Veterans Administration Hospital, Washington, D.C. The Department also collaborated with the Department of Gynecology on the organization of a symposium on Carcinoma of the Uterine Cervix.

The Department looks forward to the acquisition of three new linear accelerators and the major expansion of the radiobiology program mentioned above in 1977 and 1978.

DEPARTMENT OF NUCLEAR MEDICINE

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University of Alberta)



DR. B. C. LENTLE

A welcome addition to the Department has been the formal appointment of Dr. A. A. Noujaim, Professor of Bionucleonics at the Faculty of Pharmacy, as a Senior Research Fellow of the Dr. W. W. Cross Cancer Institute. Mr. John Scott, while remaining in the employment of the Institute will, in the new year, become Director of the new Edmonton Radiopharmaceutical Centre.

Dr. B. C. Lentle has been made an Associate Clinical Professor in the Department of Radiology, Faculty of Medicine, University of Alberta and is a Professional Associate of the Faculty of Pharmacy at the University of Alberta. Dr. Jackson has been promoted to Assistant Clinical Professor.

Dr. Lentle has acted as an editorial reviewer for the Journal of Canadian Association of Radiologists (member of Editorial Board), Journal of Nuclear Medicine and Canadian Medical Association Journal. He has also served as the physician representative on the Advanced Certification Committee in Nuclear Medicine editing the newsletter of that organization.

The student technician program has progressed with the first group of students having completed their introductory year at the Southern Alberta Institute of Technology. The students are now in inservice training shared between the University of Alberta Hospital and the Dr. W. W. Cross Cancer Institute.

In 1976 several new techniques were introduced into departmental operations. The techniques are platelet survival studies, ventilation lung imaging, radionuclide dacryocytography, and gated cardioscanning.

1977 promises again to be a year of exciting technological development as the Department will acquire, early in the year, a tomographic system based on the Anger tomographic design. In addition, the Searle radiographic gamma camera is to be upgraded to state-of-the-art resolution which itself has improved measurably since the previous equipment purchase.

Research programs, particularly at the more basic level, will gain impetus from the presence on staff of Dr. A. A. Noujaim and the appointment of a research radiopharmacist. Thus, the Department can look forward to a measure of progress and evolution in two important respects.

It is worth noting that, as a measure of the reputation the Department has been able to establish, its professional staff have received invitations to lecture in Canada and the United States at four different meetings in 1977.

The Department is largely responsible for the organization of the Annual Meeting of the Prairie Chapter Society of Nuclear Medicine, to be held in Edmonton in April of 1977 and which should provide a further stimulus to local development of nuclear medicine.

DEPARTMENT OF MEDICAL PHYSICS

S. R. USISKIN, Ph.D.

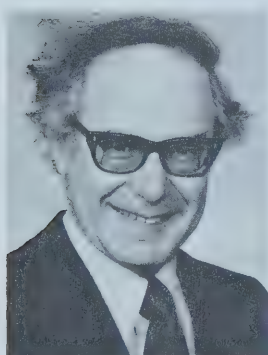
Director

(Honorary Associate Professor, Faculty of Medicine, University of Alberta)

J. W. SCRIMGER, Ph.D.

Associate Physicist

(Honorary Assistant Professor, Faculty of Medicine, University of Alberta)



DR. S. R. USISKIN

The Department of Medical Physics in the years 1975 and 1976 has seen an ever increasing intensity of activity. In view of the announced intention of the Provincial Government to allow an upgrading of the radiation oncology equipment in the Province, a comprehensive effort was launched to become familiar with the various types of commercial equipment currently available. A series of sessions were arranged with technical representatives of the prominent manufacturers. Intensive studies of the features of the machines offered were carried out and visits to observe the equipment "on site" at various institutions were undertaken. This enabled the Department of Physics to formulate its ideas on the nature of the equipment required and to generate a set of specifications to be used in the tendering process.

The Director of the Department of Physics was invited to be a member of the Committee set up by the Royal Alexandra Hospital to consider the purchase of a CT Scanner. This involved attendance at a course on CT Scanning offered by the American Association of

Physicists in Medicine held in Rochester, Minnesota in late 1976. He also travelled to various sites in the United States to view manufacturing facilities and installations. This experience has placed the Department in a more knowledgeable position regarding CT Scanners, a fact that will be of significant assistance when the Institute's Department of Diagnostic Radiology CT Scanner comes on stream in the future.

The year 1976 was the first full year in which the services of a Mould Room technician were available to the Institute. It has become self-evident that the activities in this Department will demand expansion. The introduction of this service has allowed an ever increasing use of beam direction shells and immobilizers for the radiotherapy of patients. In addition, the presence of a qualified Mould Room technician has allowed the Department to begin investigating the use of tissue compensation, a technique which allows for compensation of the varying shapes of the patient in the treated areas, thus leading to a more homogeneously delivered dose. The Department continues to provide a consulting service, particularly in the area of quality control, to the Departments of Nuclear Medicine and Diagnostic Radiology. With the acquisition of new equipment and stringent quality control requirements, the Department must expand its capabilities to provide an optimum service.

The Department is responsible for radiotherapy treatment planning and is responsible for checking every treatment prescription for errors, altering these prescriptions to accommodate the continual decay of the cobalt teletherapy output as well as to correct them for changes occurring in the mode of operation of the linear accelerator.

In the educational area, the Department is continuing its role in the teaching of radiation oncology residents, radiology residents, and the radiation oncology technicians. In an attempt to enrich the training program for technicians, a group of laboratory experiments have been designed and it is hoped that these will augment the didactic lectures offered.

Teaching assignments at the University at the undergraduate and graduate levels have continued to be honored during 1976. Two students are currently in the final stages of their programs leading to a Master of Science degree in Physics.

The Department of Physics looks forward to the year 1977 with anticipation. The challenge of receiving and commissioning the new radiotherapy equipment will be only one of the many challenges to be faced.

DEPARTMENT OF LABORATORY MEDICINE



G. O. BAIN, F.R.C.P.(C)
Director
(Professor, Faculty of Medicine,
University of Alberta)

The Department of Laboratory Medicine came into existence on January 1, 1976 to provide consultant services in tissue pathology and to provide a focus within the Institute for the participation in cancer diagnosis and diagnostic tissue review of the pathologists in Northern Alberta. Tissue review panels were established under the following headings and by the end of the year 122 cases had been referred to the panels for review:

Bone and Joint Panel	Nervous System and Ocular Panel
Breast Panel	Other Tumors (Incl. Skin) Panel
Cytology Panel	Respiratory Tract Panel
Hematological Malignancies Panel	Soft Tissue Tumors Panel
Liver, Gallbladder and Pancreas Panel	Tubular G.I.T. Panel
Male and Female Urogenital Tract Panel	

In addition to diagnostic review, some of the panels have dealt with other specific problems such as achieving uniformity in reporting of tumors of the gastrointestinal tract and breast and special forms have been developed for this purpose. In addition, one of the panels has disseminated a policy for uniformity in reporting bladder tumors and is currently studying means to achieve a uniform expression in pathology reports of depth of penetration in cases of early invasive carcinoma of the cervix. One of the panels has completed a diagnostic review of eighty cases of non-Hodgkin's lymphoma for a study being conducted by Dr. Abdul Khaliq. Another of the panels is presently reviewing a large number of cases of gastrointestinal tract cancer for Dr. T. A. McPherson's adjuvant chemotherapy study. Members of the panel on hematological malignancies have agreed to participate regularly twice weekly in lymphoma rounds in the Institute. The panel members will rotate on a three-month basis for this purpose. This will ensure regular tissue review in respect to the cases presented at rounds and permits regular participation of a pathologist in the

process of planning of therapy for the patients. This has educational value for the pathologists, brings them into the Institution regularly and will have, in the long term, benefits to the patients.

Dr. W. T. Elliott McCaughey, Director of the Canadian Tumor Reference Centre of the National Cancer Institute of Canada in Ottawa, who visited the Department of Laboratory Medicine on September 22, 1976 expressed a good deal of interest in the tumor tissue review panels of the Department of Laboratory Medicine of the Dr. W. W. Cross Cancer Institute and subsequently publicized their existence in his travels across Canada. As a result, a number of enquiries have been received from other centres about the nature and functions of the panels, most recently from Hamilton, Ontario where the possibility of setting up similar regional panels is being considered. Dr. Fred Alexander of the University of Calgary is also in the process of attempting to develop a system of panels for the southern part of the Province. We shall be exploring the possibility of working closely with these panels.

It was part of our original plan to refer cases in which diagnostic difficulties persisted following local panel review to panels of the National Reference Centre in Ottawa and this has been done in a few instances. However, it appears that it would also be desirable on occasion to refer particular cases to other authorities within or without the country in order to achieve the best available opinions in the most difficult cases. It will undoubtedly prove necessary from time to time to pay a fee for such outside opinions.

A small histopathology laboratory on the 8th floor of the Medical Sciences Building has been assigned the function of producing histologic sections of a uniformly high quality for the use of the tissue review panels. When a request for tissue review is received in the Department of Laboratory Medicine, a request for the paraffin blocks goes out. When the paraffin blocks are received they are sent to the 8th floor of the Medical Sciences Building where the sections are prepared. The sections are returned to the Institute and sent out to the panelists. The panelists have been pleased with the quality of the histological sections and the ability to sustain this quality is a condition for the continued success of the panel system. Following panel review the slides are returned to the Institute where they are filed together with the panel consultant reports. This material constitutes a selection of cases which will be useful for educational purposes.

At meetings of the Executive of the Department of Laboratory Medicine on June 16, 1976 and September 15, 1976, it was proposed that the Department of Laboratory Medicine of the Institute serve a repository function for paraffin tissue blocks for hospitals and laboratories in the northern part of the Province. It was also proposed that whenever a cancer patient has a bone marrow examination, one bone marrow smear be filed in the repository. In recent years space problems have forced some hospitals to discard paraffin blocks and even microscopic slides. This has caused some of the oncologists and the pathologists serious concern, par-

ticularly since there have already been a few cases in which tissue review has been wanted in respect either to special studies or patient reassessment and has been impossible because of unavailability of the material. It is envisioned that the provision of a central repository or library of such materials will provide a solution to this problem. A central repository would also be convenient under circumstances in which studies in oncology include pathological review, putting an end to the necessity of transferring pathological materials between institutions, sometimes on more than one occasion in respect to an individual patient. The directors of hospital laboratories in Edmonton have also expressed a desire for more readily available information on cancer patients when they are engaged in reporting upon biopsies. It would be advantageous if a pathologist in another hospital could refer to a central point for information concerning all previous biopsies or other relevant information on the patient regardless of where previous biopsies or studies had been done.

Every Wednesday afternoon at 4:00 p.m., the Department of Laboratory Medicine of the Dr. W. W. Cross Cancer Institute hosts a City Pathology Conference attended by Edmonton pathologists. This round has been in existence for more than thirty years and was moved from the Provincial Laboratory Building to the Institute on April 7, 1976. A record of the cases presented is maintained in the office of the Department of Laboratory Medicine. Clinicians in the Institute have occasionally requested that cases be presented at this round when a group opinion is required by a mechanism more rapid than the panel system. One of the advantages of holding the round in the Institute is that under these circumstances the Institute oncologist can conveniently attend for the discussion pertaining to his patient.

During 1976, 60 autopsies were performed for the Institute and 234 biopsy specimens were examined. In addition, 1,900 cytological specimens were reported upon. The latter included 180 needle aspiration biopsies. In the case of each of the latter procedures a cytologist comes to the Institute to prepare the slides, thus insuring the high technical quality which is essential to accuracy of interpretation.

DEPARTMENT OF DIAGNOSTIC RADIOLOGY

A. GUTTER, M.D., F.R.C.P.(C)

Director

(Assistant Clinical Professor, Faculty of
Medicine, University of Alberta)

W. CASTOR, M.D., F.R.C.P.(C)

Assistant Director

(Associate Clinical Professor, Faculty of
Medicine, University of Alberta)

H. FERRI, M.D., F.R.C.P.(C)

Senior Radiologist

(Clinical Lecturer, Faculty of
Medicine, University of Alberta)



DR. Z. GUTTER

The activities of the Department of Diagnostic Radiology centre mainly around providing a service for the in-patient population and the ever-growing out-patient population of the Cross Institute. This includes specialized techniques such as thermography, mammography, lymphangiography, and myelography as well as standard radiographic procedures. Over the past two years, this activity has increased by almost 14% with 30,744 examinations being performed in 1976. Much of this increase can be attributed to the introduction in late 1975 of thermography. The operational funds for this unit for 1976 were provided by a very generous contribution from Mr. Peter Pocklington of Edmonton. Without his assistance, the Institute would not have had the opportunity to work with this new technique and evaluate its effectiveness as a diagnostic tool.

The Department also acquired a self-contained chest unit in late 1975. A new examination room was created to house this unit and its acquisition has been instrumental in reducing patient waiting time in this Department. This unit is the first of several major equipment acquisitions anticipated for the Department. A position paper was submitted to Government in 1976 and it is anticipated that a major upgrading of the equipment in the Department will take place over the next two years. This upgrading will, in all likelihood, include computed tomography. CT scanners have a particular application in the field of oncology and the Institute looks forward with great anticipation to this acquisition.

The Department continues to contribute to the residency program of the University of Alberta with five residents in diagnostic radiology participating in the last two years. In addition, weekly radiology rounds for Phase III medical students were continued and lectures were given to student radiology technicians at the Northern Alberta Institute of Technology.

DEPARTMENT OF GYNECOLOGY



L. B. Brown, F.R.C.S.(C)
Director
(Clinical Professor, Faculty of
Medicine, University of Alberta)

Over the two-year period, the Department of Gynecology continued to function in close cooperation with the Department of Radiation Oncology. Two joint consultative clinics were held weekly with radiotherapists and gynecologists in attendance for joint assessment and treatment planning of new patients and review of patients with recurrent disease or treatment problems. These were in addition to regular follow-up clinics which were held for the continuing surveillance of patients following treatment. One of the most active functions of the Department has been in the field of chemotherapy of gynecological malignancies. In conjunction with the Department of Obstetrics and Gynecology of the University of Alberta and the Department of Medicine of the Dr. W. W. Cross Cancer Institute, an interdisciplinary chemotherapy team has functioned since 1970. We regret the loss of Dr. P. R. Band, an original member of this group who has left the City. Dr. A. H. G. Paterson has taken his place very ably and we enjoy an amicable and fruitful association. The other two members of this team are Drs. R. P. Beck and L. B. Brown. Continuing treatment protocols of a cooperative nature are being undertaken by this unit and at present, we are maintaining some patients on a regimen which was instituted in 1971 as part of an Eastern Cooperative Oncology group protocol. A total of 70 patients with advanced Stage III and Stage IV carcinoma of the ovary have been enrolled in this study at the present time. Twenty-one of these patients survived and the average survival time of all patients who responded to treatment was in excess of 30 months. This is an improvement relative to the previous average survival of six months of patients in these stages of the disease.

In 1973, we began participation in another Eastern Cooperative Oncology group protocol evaluating combination chemotherapy versus single agent therapy in treatment of cancer of the ovary. To date, 90 patients have been enrolled in this study and 51 of these have survived to the present time.

One year ago, we commenced participation in a National Cancer Institute of Canada prospective study of adjunctive treatment in cases of Stage I and Stage II carcinoma of the ovary. To date, 13 patients have been enrolled in this study.

The fourth cooperative study in conjunction with the National Cancer Institute of Canada involves patients with advanced and recurrent carcinoma of the endometrium. Since 1974, 18 patients with advanced recurrent and obviously otherwise untreatable carcinoma of the cervix have been treated with combination chemotherapy. The results in this group have generally been disappointing, but four of these patients have demonstrated a significant response and one of the patients who is the first patient enrolled in this study, continues in good health to the present time, an interval of three years.

The highlight of the 1975 year was the symposium on Cancer of the Cervix sponsored by the Dr. W. W. Cross Cancer Institute, the Division of Continuing Education of the University of Alberta and the Canadian Cancer Society. The program covered the principal aspects of both pre-invasive and invasive cancer. Guest speakers were Dr. R. S. Bush, the present director of the Princess Margaret Hospital in Toronto; Dr. Dennis Cavanagh, Chairman of the Department of Obstetrics and Gynecology, St. Louis University School of Medicine; Dr. Ann Worth, Head of the Department of Pathology, British Columbia Cancer Commission. The local speakers who contributed to the success of the program were Dr. J. C. LeRiche, Dr. T. A. Casper, Dr. A. Khaliq, Dr. T. A. McPherson and Dr. E. Higgins.

In the latter part of 1976, the Department acquired a teaching colposcope which has been utilized in the assessment of patients with abnormal cervical cytology and to a lesser extent, in the appraisal of patients with a suspect recurrent disease. This modality will permit more precise diagnosis of cervical dysplasia and it is hoped that the necessity for extensive cone biopsies will be reduced as the concept of colposcopic diagnosis and treatment becomes gradually accepted.

An abnormal cell clinic is currently in operation and meets weekly.

The educational activities of the Department have continued as in previous years with two of the senior residents from the Department of Gynecology of the University of Alberta attending all major consultative clinics and the gynecological chemotherapy clinic. In addition, Phase III students are in attendance at all these clinics and rotating interns assigned to the Department of Obstetrics and Gynecology also partake in these clinics.

Because of the increased need for laparoscopic examination of patients, both for appraisal of treatment success after a course of chemotherapy and for the therapeutic instillation of radioactive isotope in the peritoneal cavity an application has gone forward to provide the Department with its own laparoscope. Patients will not have to be transferred to other institutions for this procedure and then transferred back for the appropriate treatment. It is hoped that this will be available in the near future and

that this will further expand the accuracy and knowledge of the success of our treatment by chemotherapy of the earlier stages of ovarian carcinoma. A further treatment modality, which is planned for the near future, is the establishment of a cryosurgical unit which may be utilized for the treatment of intraepithelial neoplasias of the cervix.

Finally, it must be reiterated that the enhanced treatment response in all areas which has been brought about by the interdisciplinary approach to treatment, continues to be apparent and is obviously the optimal approach to the treatment of malignant disease. We wish to express gratitude to all those who participated and most particularly to Dr. R. P. Beck, Dr. J. C. LeRiche, Dr. G. A. Glazebrook and Dr. A. H. G. Paterson for their unfailing support.

DEPARTMENT OF SURGERY



M. McPHEE, F.A.C.S., F.R.C.S.(C)
Director

We note with regret the retirement of Dr. Alan McCarten from the position of Director, Department of Surgery, but we are very pleased that he maintains his membership on the surgical staff. Dr. McCarten has been the first Director of Surgery within the Institute and his contribution to the growth of the organization had been significant. Dr. Malcolm McPhee replaced Dr. McCarten as Director. The Department of Surgery consists of over 80 surgical specialists and sub-specialists from Northern Alberta. All surgeons have affiliations with other active treatment hospitals in the city and participate in Institute affairs on a part-time basis. This mechanism has provided for excellent cooperation between the various surgical sub-specialties and the enthusiasm and expertise provided by this group has led to improved patient care at the Dr. W. W. Cross Cancer Institute. The Departmental members served in the Interdisciplinary clinics in cooperation with representatives from the Departments of Medicine and Radiation Oncology, dealing with malignant disease of the breast, gastro-intestinal tract, head and neck (including thyroid), skin (including melanoma), genitourinary tract, chest, and central nervous system. In addition, various members of the Department cooperated on a

rotational basis in serving the peripheral clinics held in Grande Prairie, Peace River and Red Deer, Alberta.

The Breast Cancer Study Group continued its interest in the progress of the King's College Hospital/Cambridge University Study of Early Stage I and II Breast Cancer. The purpose of this trial was to evaluate the post-operative radiation therapy after total mastectomy. The study director, Professor J. G. Murray of King's College Hospital, visited the Institute and outlined to the staff the final results of Phase I of the study.

The gastro-intestinal study group approved a new comprehensive operative and surgical report to be used by Northern Alberta surgeons in cases of colonic cancer. This was a preliminary step in the organization of a protocol for clinical trials in gastro-intestinal cancer. In addition, the urologic cancer study group has produced a protocol for the adjuvant chemotherapy of testicular cancer. This development has been in conjunction with cancer centres in British Columbia, Saskatchewan and Manitoba.

Dr. George Bone of Newcastle, England served as a surgical research fellow. His primary concern was in the establishment and supervision of a study involving adjuvant chemotherapy and immunotherapy in the treatment of bowel carcinoma above the peritoneal reflection.

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ADAMS, DR. D. O.
AKAPATA, DR. M. O.
HATFIELD, DR. J. A.
JORDAN, DR. R. W.
MARRIOTT, DR. R. D. W.
McGECHNE, DR. J. A.
SIWAK, DR. W. J.
STOCKBURGER, DR. H.

Otolaryngology

DIDUCH, DR. L. T.
KOSTIUK, DR. J. A.

Thoracic and**Cardiovascular Surgery**

STERNS, DR. L. P.

Urology

SNIHUROWYCH, DR. W.

Consulting Staff**Anaesthesiology**

COULTER, DR. H. B.
FLETCHER, DR. C. M.
HOPKINS, DR. I. A.

General Surgery

ALLIN, DR. G. E.
BOILEAU, DR. G. R.
BOSE, DR. B.
BURY, DR. R. J.
CASE, DR. J. B.
JANZEN, DR. H. W.
MacKENZIE, DR. W. C.
MacLEAN, DR. W. A.
MICHALYSHYN, DR. B.
PAWLUK, DR. W.
PRAKASH, DR. A.
SCOTT, DR. G. W.
WILSON, DR. T. S.

Neurosurgery

BENNETT, DR. R. T.
MORTON, DR. G. K.

Ophthalmology

GOW, DR. J. A.

LEITCH, DR. G. T. J.
SCHINDLER, DR. R. F.

Oral Surgery

WARREN, DR. R. E.

Orthopedic Surgery

CAMERON, DR. G. W.
COLTER, DR. D.
GORT, DR. J.
McKENZIE, DR. A.
ROSTRUP, DR. O.

Otolaryngology

BACKSTROM, DR. A. R.
KEOHANE, DR. J. T.

Urology

MARSHALL, DR. F. C.
MIX, DR. L. W.
RAMAGE, DR. H. C.
WEISLER, DR. M. N.

PUBLICATIONS OF THE PROFESSIONAL STAFF

Andersen, B. R., ENGLISH, D., Akalin, H., Henderson, W.: Inflammatory Lesions Localized with ^{99m}Tc Sulfur Colloid Labeled Leukocytes. Published in Arch. Int. Med. 135:1067-1071, 1975.

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BURNS, P. E., KREDENTSER, S., GRACE, M.: Restaging of Breast Cancer in Northern Alberta Registry. Published in the Can. Med. Ass. J., 115(6):516-518, 1976.

CASTOR, W. R., LENTLE, B. C., GLAZEBROOK, G. A.: Radionuclide Angiography in Juvenile Angiofibroma of the Nasopharynx. Published in the Ann. of Otolaryngology and Laryngology, 84:107, 1975.

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PRESENTATIONS OF THE PROFESSIONAL STAFF

BONE, G.: Cell Kinetics in Human Gastrointestinal Cancer—an In Vivo Approach. Presented at the 67th Annual Meeting of the American Association for Cancer Research, Toronto, May 4-8, 1976.

BONE, G.: Mixed Whole Blood Lymphocyte/Tumour Cell Microcultures in Colonic Cancer Patients. Presented at the 19th Annual Meeting of the Canadian Federation of Biological Societies, Halifax, Nova Scotia, June 15-18, 1976.

BROWN, L. B.: Invasive Cancer of the Cervix. Presented at Nurses' Seminar, W. W. Cross Cancer Institute, 1976.

BROWN, L. B.: The Treatment of Advanced Ovarian Cancer. Presented at the Annual Meeting of the Canadian Gynecological Fellowship Club.

BROWN, L. B.: Changing Pattern of Early Diagnosis of Cancer of the Cervix. Presented to the medical staff of the Grande Prairie General Hospital.

BURNS, P. E.: Early Breast Carcinoma—The Radiotherapist's Dilemma. Presented at the Third European Congress of the Association of Radiology, Edinburgh, June 1975.

CASTOR, W.: Xeroradiography: A Critique for the Dentist. Presented at the Canadian Dental Association.

CASTOR, W.: Cancer of the Rectum. Presented at the Northern Alberta Symposium on Rectal Cancer, October 1976.

COATES, J.: A Direct Radioimmunoassay for Carcinoembryonic Antigen in Plasma. Presented at the Annual Meeting of the American Association for Cancer Research, Toronto, May 4-8, 1976.

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ENGLISH, D.: Tc-99m Sulfur Colloid Labeled Leukocytes for Delineation of Abscesses and Inflammatory Processes. Presented at Midwest Student Medical Research Forum, Columbia, Mo., March 1975; SAMB-UTBM National Student Research Forum, Galveston, Texas, April 1975; and the 22nd Annual Meeting of the Society of Nuclear Medicine, Philadelphia, Pa., June 1975.

ENGLISH, D.: Chemotaxis Radioassays: A Simplified Quantitative Method Using Radiocolloid Labelled Granulocytes. Presented at the Annual Meeting of the Canadian Society for Clinical Investigation, Quebec City, January 1976.

ENGLISH, D.: Technical Considerations in the Application of Liquid Scintillation Counting for Quantitation of Chemiluminescence Produced by Phagocytosing Human Leukocytes. Presented at the International Conference of Liquid Scintillation Science and Technology, Banff, June 1976.

ENGLISH, D.: Chemiluminescence of Phagocytes with Special Reference to the Monocyte. Presented at the 5th International Meeting of the Society of Experimental Hematology, Washington, D.C., August 1976.

GLAZEBROOK, G. A.: The Effect of Cytological Screening on the Incidence of Clinical Cervix Cancer in Alberta. Presented at the Symposium on Cervix Cancer, Edmonton, Alberta, April 1975.

GLAZEBROOK, G. A.: Occupational Nasal Carcinogenesis Among Dentists? Presented at the 116th Annual Congress of the American Dental Association, October 1975.

GLAZEBROOK, G. A.: Current Developments in the Treatment of Gynecological Cancer. Presented at Surgical Grand Rounds, University Hospital, Edmonton, January 1976.

GLAZEBROOK, G. A.: Results of Treatment and Complications of Radiotherapy in Carcinoma of the Cervix. Presented at OCEAN Conference, Edmonton, April 1976.

GLAZEBROOK, G. A.: Malignant Disease of the Mouth. Presented at meeting of the Dental Hygienists Association, Edmonton, May 1976.

HORAN, T.: Chemotaxis Radioassay: A Rapid Quantitative Technique Using 99mTc Labelled Monocytes. Presented at the 5th International Meeting of the Society of Experimental Hematology, Washington, D.C., August 1976.

JACKSON, F. I.: Bone Scintiscanning in the Initial Assessment of Patients with Carcinoma of the Breast. Presented at the Prairie Chapter Society of Nuclear Medicine Annual Meeting, Brandon, April 1975 and the 19th Annual Cancer Symposium, Regina, May 1975.

JACKSON, F. I.: Gallium-67 Scintiscanning in Multisystem Malignant Melanoma. Presented at the Royal College of Physicians and Surgeons of Canada Annual Meeting, Quebec City, January 1976, and the Prairie Chapter Society of Nuclear Medicine Annual Meeting, Saskatoon, April 1976.

LEES, A. W.: The West and Central Yorkshire Cooperative Study—Treatment of Early Breast Cancer. Presented at the Canadian Association of Radiologists, Toronto, April 1975.

LENTLE, B. C.: Investigation of Sacroiliac Disease: Comparison of Radiological and Scintiscan Techniques. Royal College of Physicians and Surgeons Annual Meeting, Winnipeg, January 1975 and Society of Nuclear Medicine Annual Meeting, Philadelphia, June 1975.

LENTLE, B. C.: Radiolabelling Granulocyte Scanning to Localize Acute Inflammation. Presented at the Royal College of Physicians and Surgeons Annual Meeting, Winnipeg, January 1975.

LENTLE, B. C.: Effect of Contrast Lymphangiography on the Localization of 67Ga-Citrate. Presented at the Royal College of Physicians and Surgeons Annual Meeting, Winnipeg, January 1975.

LENTLE, B. C.: A Very Low Energy Collimator for the Gamma Camera. Presented at the Chapter Society of Nuclear Medicine Annual Meeting, Brandon, April 1975.

LENTLE, B. C.: Renography in the Diagnosis of Obstructive Uropathy Due to Pelvic Malignancy. Presented at the Prairie Chapter Society of Nuclear Medicine Annual Meeting, Brandon, April 1975.

LENTLE, B. C.: The Scintigraphic Findings in Ankylosing Spondylitis. Presented at the Prairie Chapter Society of Nuclear Medicine Annual Meeting, Brandon, April 1975.

LENTLE, B. C.: Pharmacological Modifications of the Uptake of 67-Gallium Citrate by Cultured Malignant Cells. Presented at the Royal College of Physicians and Surgeons of Canada Annual Meeting, Quebec City, January 1976.

LENTLE, B. C.: The Sacroiliac Joints in Disease Associated with the Histocompatibility Antigen HLA-B-27. Annual Meeting of the Prairie Chapter Society of Nuclear Medicine, Saskatoon, April 1976.

LENTLE, B. C.: The Scintigraphic Recognition of Diffuse Osseous Metastases. Annual Meeting of the Prairie Chapter Society of Nuclear Medicine, Saskatoon, April 1976.

LENTLE, B. C.: Labelled Granulocytes in the Detection of Focal Inflammatory Disease—an Update. Presented at the Annual Meeting of the Prairie Chapter Society of Nuclear Medicine, Saskatoon, April 1976.

LENTLE, B. C.: Direct Tumour Imaging—a Review. Presented at the Annual Meeting of the Prairie Chapter Society of Nuclear Medicine, Saskatoon, April 1976.

LENTLE, B. C.: When to Turn to Nuclear Medicine. Presented at the Canadian Gynecological Fellowship Travel Club, Edmonton, May 1976.

LENTLE, B. C.: Bone Scintigraphy in Malignant Disease. Presented at the Canadian Association of Nuclear Medicine Revision Course, Toronto, August 1976.

LENTLE, B. C.: Direct Tumour Imaging. Presented to the Canadian Association of Nuclear Medicine Revision Course, Toronto, August 1976.

LENTLE, B. C.: Gallium-67 Scintigraphy in Local Recurrence of Rectal Carcinoma after Anterior Resection. Presented at a Symposium on Carcinoma of the Rectum, Edmonton, October 1976.

McGOWAN, D. G.: Curative Radiation Therapy in Carcinoma of the Prostate. Presented at the American Society of Therapeutic Radiologists, San Francisco, October 1975.

McGOWAN, D. G.: Current Concepts in Treatment of Cancer of the Prostate. Presented at the Annual Meeting of the C.S.R.T., Edmonton, June 1976.

McGOWAN, D. G.: Prostatic Cancer. Presented at Clinical Day on Cancer, Grande Prairie, November 1976.

McPHERSON, T. A.: Encephalitogenic Protein. Presented at the meeting of the American Society of Clinical

Pathologists, Las Vegas, February 21-22, 1975.

McPHERSON, T. A.: Radiolabelled Granulocyte Scanning to Localize Acute Inflammation. Presented at the 24th Annual Meeting of the Northwest Society for Clinical Research, Portland, Oregon, March 1, 1975.

McPHERSON, T. A.: Concepts in Diagnosis and Management of Cancer. Presented at the Canadian Cancer Society (Alberta Division) Meeting, Red Deer, Alberta, March 24, 1975.

McPHERSON, T. A.: Carcinoma of the Cervix as a Model for Studies in Tumor Immunology. Presented at the Symposium on Cervix Cancer, Edmonton, Alberta, April 4, 1975.

McPHERSON, T. A.: Immunotherapy of Malignancy. Presented at Advances in Internal Medicine—Perspectives and Horizons, Banff, Alberta, June 23-27, 1975.

McPHERSON, T. A.: Present Status of Tumor Immunology. Presented at Current Surgical Thinking 1976, Jasper, Alberta, March 23-25, 1976.

McPHERSON, T. A.: Immunodiagnosis of Multiple Sclerosis. Presented at MS World Conference, Toronto, October 8, 1976.

McPHERSON, T. A.: Immunotherapy in Lung Cancer. Presented at Alberta Thoracic Society Meeting, Banff, Alberta, October 16-17, 1976.

McPHERSON, T. A.: Immunological Aspects of Rectal Carcinoma. Presented at Symposium on Carcinoma of the Rectum, Edmonton, Alberta, October 29, 1976.

McPHERSON, T. A.: Neoplasia and Immunology. Presented at G.O.P. Seminar, Edmonton, Alberta, November 22-24, 1976.

PATERSON, A. H. G.: The Clinical Significance of ⁶⁷Ga Uptake in Hodgkin's Disease. Presented at the Annual Meeting of the Canadian Society for Clinical Investigation, Quebec City, January 1976.

PATERSON, A. H. G.: Malignant Melanoma: Adjuvant Chemo-immunotherapy of Stage 3 and Chemo-immunotherapy of Stage 4. American Society of Clinical Oncology, April 1976.

PEARSON, J. G.: Prognostic Factors in Squamous Esophageal Carcinoma. Presented at the Royal College of Physicians and Surgeons of Canada Annual Meeting, Winnipeg, Manitoba, January 1975.

PEARSON, J. G.: Trends in Radiotherapeutic Management of Early Breast Cancer. Presented at the 19th Annual Cancer Symposium—Cancers of the Breast and Lung, Allan Blair Memorial Hospital, Regina, Saskatchewan, May 1975.

PEARSON, J. G.: Radiotherapeutic Management of Advanced Breast Cancer. Presented at the 19th Annual Cancer Symposium—Cancer of the Breast and Lung, Allan Blair Memorial Hospital, Regina, Saskatchewan, May 1975.

PEARSON, J. G.: Radiotherapy of Lung Cancer. Presented at the 19th Annual Cancer Symposium—Cancer of the Breast and Lung, Allan Blair Memorial Hospital, Regina, Saskatchewan, May, 1975.

PEARSON, J. G.: Management of Patients with Carcinoma of Esophagus. Presented at a Seminar on Breast Cancer, Rounds and Lecture at University of Wisconsin Hospitals, Radiotherapy Centre, Madison, Wisconsin, September 1975.

PEARSON, J. G.: The Place of Radiotherapy in the Management of Early Breast Cancer. Presented at meeting of Clinical Trials in Cancer, National Cancer Institute, Toronto, Ontario, September 1975.

PEARSON, J. G.: The Present Status and Future Potential of Radiotherapy in the Management of Esophageal Cancer. Presented at the American Cancer Society meeting, San Francisco, May 1976.

PEARSON, J. G.: The Manpower Crisis in Radiation Oncology—Recruitment and Training in Canada. Presented at the Canadian Association of Radiologists meeting, Quebec City, June 1976.

SCOTT, J. R.: Radiolabelling of Granulocytes to Localize Acute Inflammation by Scintiscanning. Presented at the Prairie Chapter Society of Nuclear Medicine Annual Meeting, Brandon, April 1975 and the Annual Meeting of the Society of Nuclear Medicine, Philadelphia, June 1975.

SCOTT, J. R.: Effect of Serum Iron Levels on Tumour Uptake of Radiogallium. Presented at the Annual Meeting of the Prairie Chapter Society of Nuclear Medicine, Saskatoon, April 1976.

SCOTT, J. R.: The Radioiodination and Animal Tissue Distribution Deoxyuridine. Presented at the Annual Meeting of the Prairie Chapter Society of Nuclear Medicine, Saskatoon, April 1976.

SCOTT, J. R.: The Radiolabelling of Formed Blood Elements—A Review. Annual Meeting of the Prairie Chapter Society of Nuclear Medicine, Saskatoon, April 1976.

SHAW, A.: Specificity of the M.E.M. Test: Capacity of Basic Proteins to Elicit Responses from Carcinoma Patients. Presented at the Annual Meeting of the Canadian Society for Clinical Investigation, Quebec City, January 1976.

SHAW, A.: Antibody Dependent Cell Mediated Cytotoxicity in Malignant Melanoma. Presented at the 67th Annual Meeting of the American Association for Cancer Research, Toronto, May 4-8, 1976.

URTASUN, R. C.: Seminar on Pilot Clinical Study of the Radiosensitizer Metronidazole in Patients at Edmonton. Presented at Oliver Scott Library, Gray Laboratory, British Empire Cancer Research Unit, Middlesex, England, February 1975.

URTASUN, R. C.: Workshop on Human Pharmacological Studies of Radiosensitizers of Hypoxic Tumour Cells.

Presented at Department of Biochemistry, Brunel University, London, England, February 1975.

URTASUN, R. C.: Phase I Study of High Dose Metronidazole—A Specific Radiosensitizer of Hypoxic Cells. Presented at the Annual Meeting of the American Society of Clinical Oncology, San Diego, California, May 1975.

URTASUN, R. C.: Seminar on Clinical Trials with Glioblastoma Multiforme, using Metronidazole and Radiation. Presented at Mount Vernon Hospital, Northwood, Middlesex, February 1976.

URTASUN, R. C.: Seminar on Current Studies with the Radiosensitizer RO-07-0582. Presented at Oliver Scott Library, Gray Laboratory, British Empire Cancer Research Unit, Middlesex, England, February 1976.

URTASUN, R. C.: The Use of Modifiers of Radiation Injury. Presented at Radiation Oncology Rounds, Stanford University Medical Centre, Palo Alto, California, April 1976.

URTASUN, R. C.: The Use of Hypoxic Cell Sensitizers in Clinical Oncology. Presented at combined Neurosurgical and Radiation Therapy Rounds, University of California, San Francisco Medical Centre, San Francisco, May 1976.

URTASUN, R. C.: Recent Trials with Metronidazole and RO-07-0582 in Solid Tumors. Presented at Radiation Oncology Rounds, Massachusetts General Hospital and Harvard Medical School, Boston, May 1976.

URTASUN, R. C.: Phase II Study of Metronidazole Plus Radiation in Supratentorial Glioblastoma. Presented at the Annual Meeting, American Society for Cancer Research, Toronto, May 1976.

URTASUN, R. C.: Phase I and II Clinical Trials with Metronidazole. Presented at the International Symposium on Metronidazole, Montreal, May 1976.

URTASUN, R. C.: Radiation Protectors. Presented at the C.S.R.T. Annual Meeting, Edmonton, June 1976.

URTASUN, R. C.: Review on the Use of Hypoxic Cell Sensitizers in Clinical Practice. Presented to Radiation Therapy Oncology Group, Hyannis, Massachusetts, June 1976.

URTASUN, R. C.: Phase I and II Clinical Studies of Two Nitroimidazole Derivatives. Presented at the Annual Meeting, Radiation Research Society Symposia on Hypoxic Cell Radiosensitizers, San Francisco, June 1976.

URTASUN, R. C.: Review of Canadian Experience with RO-07-0582. Presented to N.C.I. (U.S.) meeting referable to Radiosensitizers, Bethesda, Maryland, October 1976.

URTASUN, R. C.: Basic Concepts and Experiences with Radiosensitizers. Presented to N.C.I. Brain Tumor Study Group, Washington, November 1976.

URTASUN, R. C.: Radiobiological Studies with Helium and Heavy Ions. Presented at TRIUMF Annual Users Meeting, Vancouver, December 1976.

CALGARY CANCER CLINIC



ADMINISTRATION



DR. J. R. FRANCIS
Director



MRS. A. CHERRY
Director of Nursing



MRS. A. MITCHELL
Administrative Officer

DIRECTOR'S REPORT

The Calgary Cancer Clinic has continued to expand over the last two years as will be noted in the statistical findings in the various departmental reports. This increased activity has placed an additional load on the present facilities and our staff welcome the plans that are now underway to move the Cancer Clinic to a new facility which is being planned for the University/Foothills Hospital area in the City of Calgary. When this is completed, hopefully in June of 1980, the Clinic will be increased to include more therapy areas, a large outpatient area and day care centre, and will be complemented by the use of 50 beds to be controlled by the Cancer Clinic staff in the Extended Care Facility of the Foothills Hospital.

It is particularly noted that the number of patients receiving chemotherapy in Southern Alberta on an outpatient basis has increased markedly and will probably increase more rapidly than ever during 1977.

In 1975, Dr. Thomas Ringrose joined the Radiation Oncology staff but at the end of December 1975 Dr. Nina Vander Lubbe left her post to reside in Europe. We were particularly fortunate to appoint Dr. Keith Arthur to this Department during 1976.

As this report goes to press, a new simulator is being installed in the present Clinic and a linear accelerator should be operative within the next several months.

DEPARTMENT OF RADIATION ONCOLOGY

I. SCOTT BROWN, M.B., B.S., R.F.C.S.(E),
F.R.C.R., D.M.R.T.

Director

(Associate Professor, Faculty of
Medicine, University of Calgary)

K. ARTHUR, M.B., Ch.B., D.M.R.T., F.R.C.R.

Senior Radiation Oncologist

(Assistant Professor, Faculty of
Medicine, University of Calgary)

J. M. BARNES, B.M., B.Ch., D.M.R.T.

Senior Radiation Oncologist

T. L. RINGROSE, M.A., M.B., B.Chir.

Senior Radiation Oncologist



DR. I. SCOTT BROWN

The function of the Radiation Oncology Department in Calgary is one of service to patients, education of paramedical groups and the public, the organization and conduct of a student technician program, peripheral involvement in the isotope clinic program in Calgary, and participating in formal and informal elective programs for graduate and postgraduate medical students. However, the affiliation agreement which has been arranged between the Provincial Cancer Hospitals Board and the University of Calgary Medical School will enable cross appointments between the Calgary Clinic and the Medical School and should considerably expand the scope of the Department in the educational and research spheres. We should also have input into the undergraduate medical curriculum and by so doing increase the contact with undergraduate and graduate students and hopefully create a "milieu" in which oncology will be considered by future practitioners as a career specialty.

Dr. Keith Arthur has joined the Department via Birmingham, England and the Memorial Hospital in New York. He has brought with him a fresh approach to the combined treatment of certain malignancies and already the Department has profited quite remarkably by his contribution to our endeavor.

The technical staff maintain on the whole a high standard of excellence and this has been continued through the appointment of two new technicians who graduated from our training school at the beginning of 1975.

Our technical training school is thriving and has now received full approval from the Conjoint Committee on Accreditation of Training Programs. We are very indebted to Mrs. Fisher, and her colleague, Mrs. Gwenyth Caldwell in Edmonton, for their combined efforts in formulating an excellent program.

Facilities

There has been a general increase of facilities in the Department. Older methods and measures have been improved utilizing new ideas. Source changes have been made which have speeded up treatment tremendously, and by the employment of a smaller sized source it is hoped that better beam definition will be obtained.

The additional software received for our computerized planning program has widened our sphere considerably and given us far greater accuracy with regard to treatment planning and greater knowledge of distribution of dosage within the volume under consideration.

The simulator is being installed and a 6-MeV accelerator and mould room equipment will be installed in the immediate future. The Department has expanded considerable effort in providing input to the architects with regard to the planning of the new Calgary Cancer facility. It is envisioned that there will be a stand-mounted cobalt unit, a fully rotational cobalt unit, a 6-MeV accelerator and at the time of construction it is hoped that a 20-MeV accelerator with both a photon and electron capability will be installed. For the future, we see the installation of a 10-MeV accelerator and are hoping that any specific gains in therapeutic ratio will occur by developments in

CONSULTANT CLINICAL STAFF

ATTISHA, DR. R.
BARNES, DR. P.
BUIE, DR. W. J.
CAMPBELL, DR. W. N.
CHIPPERFIELD, DR. W. G.
DALE, DR. C. C. H.
DEI-BANING, DR. A.
ENTA, DR. T.
FERGUSON, DR. I. A.
GILLESPIE, DR. J. D.
GRACE, DR. D. A.
GROVES, DR. T.
HACKEMANN, DR. M.
HANSLIP, DR. A. R.
HARSE, DR. H. R.

HUNT, DR. J.
KETCHESON, DR. R. B.
KUDRYK, DR. W. H.
LIVINGSTON, DR. D. A.
MacGREGOR, DR. D. J.
McCULLOCH, DR. C. F.
McKERCHER, DR. L. A.
MAH-POY, DR. G. L.
MALLEN, DR. P. R.
MITCHELL, DR. L. I.
MORTIS, DR. E. A.
NATION, DR. E. W.
NOAKES, DR. J. A.
POW, DR. R. E.

REDDING, DR. K. G.
REMINGTON, DR. D. W.
RETZER, DR. O.
ROBB, DR. W. A.
ROE, DR. R.
RUETHER, DR. B. A.
SCHNEIDER, DR. M. P.
SINGH, DR. R. R.
SPACKMAN, DR. L. F.
TROY, DR. M. T.
WAGNER, DR. G. A.
WALLACE, DR. D. S.
WILLIAMS, DR. J. A.
WILSON, DR. A. E.

PUBLICATIONS OF THE PROFESSIONAL STAFF

BOSE, B., Boake, R. C.: Obstructive Uropathy Due to Primary Retroperitoneal Tumor (Leiomyosarcoma): Report of Two Cases and Review of the Literature. Published in the Brit. J. of Surg. 63(12):934-940.

PRESENTATIONS OF THE PROFESSIONAL STAFF

WHAUN, J. M.: Acute Childhood Leukemia. Presented on CFAC-TV—Accent on Calgary, 1976.

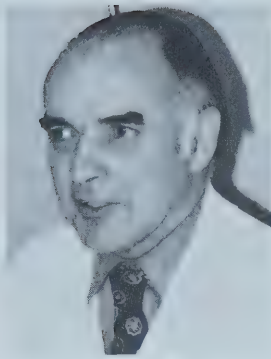
WHAUN, J. M.: Effects of Cations and Ionophore A23187 on Cyclic AMP Levels in Platelets. Presented at XVI Congress of International Society of Hematology, Kyoto, 1976.

WHAUN, J. M.: Ionophores and the Release Reaction of Platelets of Newborn Infants. Presented at the Royal College of Physicians and Surgeons of Canada, Quebec City, 1976.

WHAUN, J. M.: Recent Advances in Pediatric Oncology. Presented at Pediatric Workshop, University of Calgary, 1976.

LETHBRIDGE CANCER CLINIC





D. A. RICE, M.D.
Director

In 1975, the major change in the Clinic operation was the inauguration of a special genito-urinary clinic operated on a semi-monthly basis for the first and third Wednesday afternoons of each month. This has met with a considerable amount of patient favor and is proving highly successful. An average of some 30 patients per month are presently attending. Three urologists of Lethbridge, Drs. Amundsen, Livingstone and Wright, attend this clinic on a rotational basis.

Examinations in the two clinics totalled 2,344 with new patients totalling 232. Of these, there were 141 new malignancies and 288 non-reporting malignancies making a total of 429 new malignancies for the year. Gastro-intestinal malignancies remained high at 74, breast malignancies totalled 43, gynecological malignancies 42. Lung cancer continues to rise with 22 cases reported, 9 more than in 1974.

In 1976, the premises of the Clinic were completely redecorated and are much more attractive. Tuesday morning general session clinics are running well and the gastro-intestinal clinic inaugurated in 1975 has been reduced to alternate Wednesday afternoons but proving to be a useful modality.

In 1976, the chemotherapy clinic was instituted on Thursday mornings and this seems to be growing much faster than had been anticipated. There are presently 40 people on various modalities of chemotherapy and this rapid increase will undoubtedly mean that there will be a shortfall in budgeted chemotherapeutic drugs in this Clinic.

The Lethbridge Clinic is pursuing its study of the late effects of childhood irradiation of the nasopharynx and they are evaluating all the cases that have been at risk in this area which now amounts to a total of about 80. Apparently, 30 years ago in Lethbridge, irradiation of the thymus gland was very common and they are presently trying to locate these people as well, considering them also a group "at risk".

The malignant breast study from 1950 to 1970, some 466 cases in all, has been re-evaluated from the pathological point of view and the figures are now being analyzed by the Department of Biostatistics, Analysis and Cancer Registry.

Shortage of space for the Thursday morning chemotherapy session is a problem that will have to be considered in the future but the third intravenous chair provided in recent months will certainly help alleviate this situation.

All in all, the Lethbridge Clinic has had a very satisfactory two-year period of operation.

PERIPHERAL CLINICS

The W. W. Cross Institute in Edmonton is responsible for operating peripheral cancer clinics in Red Deer, Grande Prairie and Peace River. The Red Deer Clinic is held once a month, the Grande Prairie Clinic and the Peace River Clinic are held once every two months. These out-reach programs have proved to be a very valuable part of the overall cancer care effort in the Province.

In the case of the Red Deer Clinic, one of our Radiation Oncologists and one of our Medical Oncologists attend the Clinic each month and work with representative surgeons of the Red Deer community in providing a follow-up service for patients from that area.

In the case of the Grande Prairie and Peace River Clinics, a Radiation Oncologist attends each session along with a surgeon from Grande Prairie, again providing a follow-up for patients previously seen at the Cross Institute.

These clinics make it possible for patients in the various areas to be followed without the patients themselves

making the long trip to Edmonton and it also provides an opportunity for the patient's physician to attend the clinic at the appropriate time when the patient is being seen. This has a very desirable effect of improving communication between the local physician and the clinic staff and has been a definite factor in improving patient care.

The Calgary Clinic supervises the operation of a peripheral clinic in Medicine Hat and in view of the fact that we have not had sufficient personnel in the Calgary area to be able to send clinic staff to Medicine Hat for these clinics, the responsibility has been undertaken by Medicine Hat physicians and surgeons under the direction of Dr. H. F. McKenzie. This program has proven to be an excellent means of providing follow-up for Calgary Cancer Clinic patients in the Medicine Hat area.

Eventually, we would hope that a radiation oncologist and perhaps a medical or surgical oncologist from the Calgary Clinic might well visit the Medicine Hat Clinic on occasion to provide the same type of communication with local physicians which we feel is so beneficial to the care of oncology patients in Northern Alberta.

ACKNOWLEDGMENTS

The operations of the Provincial Cancer Hospitals Board are financed by the Province of Alberta through the Alberta Hospital Services Commission.

Basic support for the clinical and fundamental research carried out by the Provincial Cancer Hospitals Board is provided by the Government of the Province of Alberta, the National Cancer Institute of Canada, the Department of National Health and Welfare, the Medical Research Council, the Canadian Cancer Society, the Canadian Cancer Society (Alberta Division), the Medical Services Research Foundation, the Department of Labor and Eldorado Nuclear Ltd.

In addition, our research and clinical activities are assisted by bequests and donations. Substantial donations have been received from Dr. T. D. Baker, I.O.D.E. Cooking Lake Branch, I.O.D.E. Lord Strathcona Branch, Mr. G. Lambert, Mr. Adolph Lechelt, War Amputations of Canada, Southgate Shopping Centre, Dr. William Castor, Mr. and Mrs. G. Cunningham, Edmonton City Police Welfare and Charity Fund, Mrs. C. Gadeski, I.O.D.E. Municipal Chapter, Lions Ladies' Club, Mrs. P. M. Nash, Gloge Heating and Plumbing Ltd., Westown Ford, Mr. and Mrs. Gordon B. Cairns, Edmonton Area Council Beta Sigma Phi, Mr. and Mrs. James H. Magee, Mrs. W. F. Pollock, Society of Nuclear Medicine, Weisler's Wholesale Ltd.

Donations have also been received from A.C.T. Edmonettes, Alberta Government Telephones Staff, Amby Lenon, Austin O'Brien High School Students' Union, Banister Pipelines Ltd. Staff, Mr. Manuel Bilou, Dr. I. S. Brown, Canadian Cancer Society Volunteers, Dr. W. W. Cross Volunteer Services, Mr. and Mrs. C. M. Duemler, Mrs. V. Ferguson, Mrs. Agnes Frick, Mrs. M. Hendry, Mr. Jack Hogge, Mrs. Jean Hutton, Keomi Club, Ping Poay Khuay, Mr. and Mrs. H. Leuders, Mr. Thomas Lindop, Madame Lim Saw Loai, Dr. S. Low, Mrs. Esther MacDonald, Makali Holloway and Associates, Minsos Vaitkunas Jamieson Architects, Order of the Royal Purple, Mr. and Mrs. D. Pearce, Mr. and Mrs. Keith Peet, Miss C. Ping, Miss G. W. Stores, Dr. and Mrs. T. Teem, Mr. and Mrs. A. Thornberry, Mr. Raymond Tremblay, Mrs. Lillian Trueman, Mr. Ken Webb, Miss Eva M. Wilson, Mr. and Mrs. M. Wong, Mr. J. A. Bryan, Canada Packers Ltd. Staff, J. Chimick, Demers and Romanchuk Families, Fletcher Family, Mrs. L. Flint, Mr. and Mrs. James Hunter, Mr. Aleck Hutchinson, Mr. Irving Kipnes, Ingrid Laube, Mr. Peter Laube, Mrs. A. LeBouef, Dr. B. Lentle, Mr. and Mrs. R. McElwarn, Mr. and Mrs. W. McFadyen, Mr. and Mrs. M. B. Martin, Ethel Moyer, Muttart Foundation, Mr. and Mrs. J. Peterson, Mr. W. Pratt, Mr. Cliff J. Revell, The Seymour Family, Mr. and Mrs. F. Seymour, Automotive Hardware Ltd., Mr. Horace G. Barclay, Mr. and Mrs. Wayne Bauer, Bay Credit Office Staff, Mr. Lawrence Boote, Brownlee Fryett Barristers and Solicitors, Mrs. Roberta Costello, Mrs. Audrey Dahl, Mrs. Audrey Dalziel, Mr. John Dodds, Mr. Frend Edmundson, Mr. Harry Framer, Mr. H. N. Gilchrist, Mrs. Reta Gilrie, Mr.

Steve Halasz, Mr. K. Harapniuk and Tenants of St. Basil's Senior Citizens' Residence, Mrs. Nellie Hogg, Holmer Insulation Ltd., International Paper Co-Consumers Packaging Group, Dr. A. Kindy and X-Ray Staff of Holy Cross Hospital, Mrs. Margaret Kirkham, Mr. T. H. Lindop, Mr. Frank Lynch-Staunton, Mr. and Mrs. R. Matthews, Mr. and Mrs. Hugh Millar, Mrs. J. D. Miller, Motor Vehicle Branch Staff, Mr. Robert A. Orr, Mr. M. Peebles, Miss Margaret Pirie, Royal Canadian Legion—Uranium City, Mr. Antonio M. Sacconaghi, Mrs. Flore Shaw, Sherwood Park Minor Hockey Association, Mr. E. R. Skjonsberg, Skyline Products Ltd., Miss G. Stoerer, Mrs. Schwartz, Mr. and Mrs. Harold Swenson, Dr. and Mrs. W. M. Taskey, Mr. J. B. Tittsworth, W. W. Cross Staff Nurses' Association, United Steel Workers of America, R. F. Welch (B.C.) Ltd., Miss Eva M. Wilson, Mr. Walter Woytowicz, Mrs. Gertrude Biggs, Mr. and Mrs. Joe Blahun, Mr. G. Ian Cameron, Mr. Lindsay P. Carter, Mr. J. Chalifoux, Mr. John Chimich, Edmonton Co-op No. 3 Staff, Edmonton Post Office Staff, Irma Women's Institute, Mrs. Lila Kyba, Mrs. Evelyn Magee, Miss Ethel Mayer, Mr. and Mrs. Sam Nahirney, N.A.I.T. Medical Typists Staff, Mr. and Mrs. G. B. Sullivan, and T.L.J. Management Ltd.

Many other loyal friends of the Board and the Cross Institute have made donations in amounts under \$50.

AUDITOR'S REPORT

To the Members of the
Provincial Cancer Hospitals Board

I have examined the balance sheet of the Provincial Cancer Hospitals as at December 31, 1976 and the statements of revenue, expenditure and revenue surplus and capital surplus for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as I considered necessary in the circumstances.

In my opinion, these financial statements present fairly the financial position of the Hospitals as at December 31, 1976 and the results of their operations for the year then ended in accordance with the disclosed basis of accounting described in Note 2 to the financial statements applied on a basis consistent with that of the preceding year.

A handwritten signature in dark ink, appearing to read 'A. H. D. Royen', is written over a horizontal line.

C.A.
Provincial Auditor

Edmonton, Alberta
April 7, 1977

**PROVINCIAL CANCER HOSPITALS
BALANCE SHEET
AS AT DECEMBER 31, 1976**

Statement A

ASSETS		LIABILITIES	
	1976	1975	1976
Current:			
Cash	\$ 248,788	\$ 186,721	\$ 531,009
Short term deposits	900,000	500,000	
Accounts receivable (Note 3)	163,674	178,591	451,000
Inventories, at cost	188,064	191,814	
Accrued interest	1,221	360	982,009
Prepaid expenses	4,727	2,914	
Due from trust funds	16,277	6,894	707,058
	<u>1,522,751</u>	<u>1,067,294</u>	<u>2,857,600</u>
Advance to Edmonton Radiopharmaceutical Centre	166,316	—	2,709,126
Capital:			
Buildings and improvements, at cost (Note 4)	7,432	7,432	425,859
Furniture and equipment, at cost	2,850,168	2,701,694	16,277
	<u>2,857,600</u>	<u>2,709,126</u>	
Trust:			
Cash	59,079	79,156	
Term deposits	377,000	295,400	368,754
Accrued interest	4,758	3,594	6,894
Accounts receivable		10,515	515
Equipment, at cost	1,299	1,299	13,801
	<u>442,136</u>	<u>389,964</u>	<u>442,136</u>
	<u>\$4,988,803</u>	<u>\$4,166,384</u>	<u>\$4,988,803</u>
			<u>\$4,166,384</u>

The accompanying notes are part of these financial statements.

PROVINCIAL CANCER HOSPITALS
STATEMENT OF REVENUE, EXPENDITURE AND REVENUE SURPLUS
FOR THE YEAR ENDED DECEMBER 31, 1976

	1976	1975
REVENUE		
Grants, Alberta Hospital Services Commission	\$8,373,748	\$7,539,928
Patient charges	192,442	160,868
Interest	87,335	39,656
Dietary	55,371	60,771
Miscellaneous	38,805	42,465
	<u>8,747,701</u>	<u>7,843,688</u>
EXPENDITURE		
Nursing services	748,915	706,742
Diagnostic and therapeutic services	3,794,442	3,476,272
Drugs, medical and surgical supplies	533,982	414,025
Educational services	26,601	24,060
General services:		
Administration	1,741,114	1,575,510
Plant operation	613,135	450,017
Dietary	289,077	284,161
Other	643,940	588,892
	<u>8,391,206</u>	<u>7,519,679</u>
Operating surplus for the year	356,495	324,009
Equipment acquired from operating funds		62,074
Surplus for the year	356,495	261,935
Revenue surplus at beginning of year	348,282	112,774
Previous years' adjustments, net	2,281	308
Refund to Alberta Hospital Services Commission with respect to overpayment of basic operating payments of previous year		(26,735)
Revenue surplus at end of year	<u>\$ 707,058</u>	<u>\$ 348,282</u>

PROVINCIAL CANCER HOSPITALS
STATEMENT OF CAPITAL SURPLUS
FOR THE YEAR ENDED DECEMBER 31, 1976

	1976	1975
Balance at beginning of year	\$2,709,126	\$2,571,408
Add: Equipment acquired during year	170,910	150,037
	<u>2,880,036</u>	<u>2,721,445</u>
Deduct: Disposal of equipment	22,436	12,319
Balance at end of year	<u>\$2,857,600</u>	<u>\$2,709,126</u>

**PROVINCIAL CANCER HOSPITALS
NOTES TO THE FINANCIAL STATEMENTS
DECEMBER 31, 1976**

Note 1 Authority

The Provincial Cancer Hospitals operate under the authority of The Cancer Treatment and Prevention Act, Chapter 38, Revised Statutes of Alberta 1970.

Note 2 Accounting Policies

These financial statements have been prepared in accordance with generally accepted accounting principles except that no depreciation has been provided on buildings, furniture and equipment. The Alberta Hospital Services Commission provides funds for the acquirement and replacement of furniture and equipment and for the retirement of debt incurred in the acquirement of capital assets. See Statement C.

Note 3 Accounts Receivable

Accounts receivable consist of the following:

	1976	1975
Hospitalization Benefits Plan	\$ 96,153	\$ 105,513
Patients, less allowance for doubtful accounts	20,914	43,255
Miscellaneous	46,607	29,823
	<u>\$ 163,674</u>	<u>\$ 178,591</u>

Accounts receivable under the Hospitalization Benefits Plan are subject to approval and final determination by the Alberta Hospital Services Commission and collection is subject to such approval.

Note 4 Buildings

The premises occupied by the Dr. W. W. Cross Cancer Institute in Edmonton were constructed by the Department of Public Works and are not reflected in the Balance Sheet.

Note 5 Anti-Inflation Program

Pursuant to an agreement between the Government of the Province of Alberta and the Government of Canada, the Provincial Cancer Hospitals are subject to the guidelines as specified in The Anti-Inflation Act with respect to compensation paid to their employees.

Note 6 Comparative Figures

The 1975 comparative figures have been restated where necessary to conform to 1976 presentation.

